

COOPER NUCLEAR STATION  
SUMMARY TECHNICAL REPORT ON  
PRIMARY CONTAINMENT INTEGRATED  
LEAK RATE TEST  
PERFORMED  
AUGUST 27, 1983

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COOPER NUCLEAR STATION  
SUMMARY TECHNICAL REPORT  
ON  
PRIMARY CONTAINMENT INTEGRATED LEAK RATE TEST

The following information is submitted in accordance with the format suggested in ANSI/ANS - 56.8-1981, "Containment System Leakage Testing Requirements".

General Data

- (a) Owner: Nebraska Public Power District
- (b) Docket No.: 50-298
- (c) Location: Brownville, Nebraska
- (d) Containment Description: BWR, Mark I
- (e) Date Test Completed: August 27, 1983

Technical Data

- (a) Containment Free Volume (ft<sup>3</sup>): 242,550.0
- (b) Design Pressure (psig): 56 psig (70.7 psia)
- (c) Design Temperature (°F): 281
- (d) Calculated Accident Peak Pressure, Pac (psig): 46.2
- (e) Calculated Accident Peak Temperature (°F): 170

Test Data

- (a) Test Method: Absolute and Reference Chamber Methods
- (b) Data Analysis Technique: Mass Point
- (c) Test Pressure (psia): Start 72.100 End 71.996
- (d) Maximum Allowable Leak Rate (La) (wt%/24hours): 0.635
- (e) Calculated Leakage Rate at Upper Confidence Limit (wt%/24 hours):  
Absolute 0.353  
Reference Chamber 0.193
- (f) Measured Leak Rate (wt%/24 hours):  
Absolute 0.258  
Reference Chamber 0.142

Verification Tests

- (a) Calibrated Leak Superimposed (wt%/24 hours):  
Absolute 0.969  
Reference Chamber 0.738  
(Imposed Leak = 0.631 w%/24 hours = .99 La)
- (b) Mass Step Change Metered Volume (% La): Not Performed
- (c) Mass Step Change Measured by Type A: Not Performed
- (d) Test Instrumentation: See Attachment "A"

### Analysis and Interpretation

A primary containment integrated leak rate test was conducted at Cooper Nuclear Station on August 26-27, 1983, in accordance with station Technical Specifications and procedures. Data was taken at 20-minute intervals utilizing plant personnel and the plant process computer. General Electric Company provided consulting services. The data was analyzed using a desk computer and the GE Nuclear Services Department Integrated Leak Rate Test Program. Both the absolute and reference chamber methods were employed in the analysis.

The data analysis is a mass point analysis based on ANSI/ANS - 56.8-1981, "Containment System Leakage Testing Requirements" and ANSI N45.4-1972, "Leakage-Rate Testing of Containment Structures for Nuclear Reactors". This method consists of determining the mass of air in the containment utilizing the ideal gas law then using a straight-line least squares analysis to estimate the leak rate.

For the absolute method, the mass of air in the containment at time  $i$ ,  $W_i$ , is:

$$W_i = \frac{144V}{R} \left[ \frac{(P_i - P_{vi})}{T_i} \right]$$

where:  $V$  = containment free volume (cu. ft.)  
 $R$  = gas constant for air  
 $P_i$  = absolute pressure at time  $i$  (psia)  
 $P_{vi}$  = partial pressure of water vapor at time  $i$  (psia)  
and  $T_i$  = mean absolute temperature of the containment air ( $^{\circ}R$ )

For the reference chamber method,  $W_i$  is:

$$W_i = W_{i-1} \left\{ 1 - \left[ \frac{T_{i-1} (\Delta P_i + P_{vi})}{T_i (P_{i-1} - P_{vi-1})} - \frac{(\Delta P_{i-1} + P_{vi-1})}{(P_{i-1} - P_{vi-1})} \right] \right\}$$

where:  $W_{i-1}$  = containment mass for the previous measurement (lbm)  
 $T$  = mean absolute temperature ( $^{\circ}R$ )  
 $P$  = absolute pressure (psia)  
 $P_v$  = partial pressure of water vapor (psia)  
 $\Delta P$  = pressure difference between the reference chamber and the drywell (psid)  
 $i$  = present measurement  
and  $i-1$  = previous measurement

For both methods, the mass at time  $t_i$  is fit to a least squares straight line,

$$W_i = A t_i + B$$

and the leak rate is computed from the slope of the line,

$$Lam = -2400 A/B, \text{ where } A \text{ and } B \text{ are defined above.}$$



The ninety-five (95) percent upper confidence limit (UCL) is that leakage for which there is only a five (5) percent chance that the leakage exceeds the reported value. An approximation formula is used:

$$UCL(95\%) = Lam + 2400 t_{.95} \frac{Sa}{B}$$

where Lam and B are defined above, and

$$t_{.95} = 1.645 + \frac{1.576}{(n-2)} - \frac{2.4}{(n-2)^2} + \frac{57.6}{(n-2)^3}$$

n = number of measurements

$$\text{and } Sa = \left\{ \left( \frac{1}{n-2} \right) \left[ \frac{n(\sum W_i^2) - (\sum W_i)^2}{n(\sum t_i^2) - (\sum t_i)^2} - A^2 \right] \right\}^{\frac{1}{2}}$$

with  $W_i$ ,  $t_i$  and A defined above.

The computed leak rates, 0.258 w%/24 hours (absolute) and 0.142 w%/24 hours (reference chamber), both fall below the Appendix J limit of 0.75  $La$  (= 0.47 w%/24 hours). The following data is provided:

1. Reference chamber test data (Attachment "B").
2. Leak rate test summary sheets and graphs (Attachment "C").
3. Leak rate test interval data sets (Attachment "D").

The integrated leak rate test (normally of 24 hours duration) was terminated after 8 hours. This was done with the concurrence of all officiating parties (NPPD, GE, and the NRC).

The test method is verified using the superimposed test if:

$$| L'am - Lam | \leq 0.25 La$$

where:  $L'am$  = composite leak rate

$Lam$  = test leak rate

and  $La$  = leak rate limit at 58 psig

For a superimposed leak of 0.631 w%/24 hours, the limits are 0.730 to 1.047 w%/24 hours for the absolute method and 0.614 to 0.931 w%/24 hours for the reference chamber method. For the absolute method the superimposed leak rate (0.969 w%/24 hours) falls within the limits. The superimposed leak rate for the reference chamber method (0.738 w%/24 hours) falls within the limits. Data sheets for the composite leak rate test are included in Attachment "F".

The following test backup data is retained at the station:

1. Containment penetration listing
2. System status (at time of test)
3. Instrument validation data
4. Data to verify temperature stabilization prior to starting test

5. Test procedure
6. Local leak rate test data
7. System P & ID's

## SUMMARY OF EVENTS

### I. ILRT Discrepancies

While pressurizing the drywell, only a few minor leaks were found. The following valves were found to have packing leaks; PC-V-240, PC-V-108, CS-V-10, RHR-V-83, RHR-MO-39A, RHR-MO-15B, RHR-MO-16B, RHR-MO-34B, and RHR-MO-39B. The packing was tightened on these valves at the time the leak was located and pressurizing was continued on the primary containment.

No significant problems were encountered while pressurizing or at pressure (Pa) of the primary containment for the ILRT.

### II. Local Leak Rate Tests Since Last ILRT (May, 1980)

#### A. Discussion

With the exception of penetrations X9A and B, all containment isolation valves were tested by pressurizing the space between valves and observing pressure decay. By calculating the volume of the test space between valves, and observing the time rate of pressure decrease, leak rate in cfh is computed.

Temperature correction was employed only on the main steam isolation valves since they were tested immediately following shutdown and the high temperatures were a significant factor in the calculations. Any leakage rate calculated without temperature correction will yield larger indicated leakage, since all valves are above standard temperature. Thus from the standpoint of Technical Specifications for allowable leakage, the uncorrected data is more conservative.

All Type B and C tests were conducted in accordance with 10CFR50 Appendix J with the following exceptions:

1. Main steam isolation valves were tested at 29 psig instead of Pa (58 psig).
2. Feedwater check valves were tested with water instead of air or nitrogen in 1981 and 1982. In 1983 the feedwater check valves were tested with air.
3. Main steam and feedwater line expansion bellows were tested at 5 psig instead of Pa.

4. The personnel airlock hatch to the drywell was tested at 3 psig, following each opening, instead of Pa. However, a full pressure test at Pa is conducted at 12-month intervals. Since May, 1983, the airlock hatch is tested at full pressure test of Pa at 6-month intervals according to the Radiological Technical Specifications.

The volumes of the toroidal spaces in the double-gasketed seals and bellows are somewhat uncertain due to the presence of flexible rubber, and in all cases the volumes are very small. For all seals and bellows a test rig was used which contained a known volume of .25 ft<sup>3</sup> and the seal and bellows volume was considered insignificant.

The allowable local leakage rate as specified in the CNS Technical Specifications for all valves and penetrations other than the main steam isolation valves is .60 La.

#### Local Leakage Limit Calculations

Drywell Volume	132250 ft <sup>3</sup>	Total contained mass of air at
Torus Volume	110300 ft <sup>3</sup>	58 psig (or 72.7 psia):
Primary Cont. Volume	242550 ft <sup>3</sup>	$M = \frac{(72.7)(144)(242550)}{53.3(530)}$
		= 89887 lbs.
$\frac{\text{in}^2}{\text{ft}^2}$	144	
$^{\circ}\text{Rankine}$	530	
gas constant	53.3	

The maximum allowable leakage for the integrated leak test is La = .635% of the contained weight of air per 24 hours.

$$\begin{aligned} La &= .00635 (89887) \\ &= 570.8 \text{ lb/day} \\ &= 23.78 \text{ lb/hr} \end{aligned}$$

Converting this flow to cubic feet per hour at standard conditions:

$$La = \frac{(23.78)53.3(530)}{14.7(144)} = 317.4 \text{ scfh}$$

The maximum allowable leakage for the local leakage tests is .60 La.

$$.60 La = (317.4)(.6) = 190.4 \text{ scfh}$$

Local leak rate tests were performed in May 1981, July 1982, and August 1983. All primary containment double-gasketed seals, testable bellows, electrical penetrations, isolation valves, and airlock doors were tested in accordance with Technical Specification 4.7.A.F.

The May 1981 test tested 93 penetrations of which 12 Type C penetrations were found to be leaking excessively and were repaired and retested. The July 1982 test tested 93 penetrations of which 7 Type C penetrations were found leaking excessively requiring repair and retest. The August 1983 test tested 93 penetrations of which 20 Type C penetrations were leaking excessively requiring repair and retest. No electrical penetrations or bellows leaked excessively.

B. Penetrations Failing Local Leak Rate Tests

Listed below is a summary of local leak rate tests for primary containment penetrations found leaking excessively.

X-7A

Main Steam Isolation Valves. MS-AO-80A (inboard isolation valve) and MS-AO-86A (outboard isolation valve).

In the August 1983 test, the initial leakage was found to be 13.42 cfh. The established limit is 5.0 scfh and the Technical Specification is 11.5 scfh per valve. MS-AO-86A was disassembled, the disc and seat of the main and pilot valve were lapped. After repair, the leakage was reduced to .42 cfh. MS-AO-80A was not repaired or adjusted; therefore, primary containment would have been maintained by the inboard isolation valve MS-AO-80A. The leaking valve is a 24" air operated angle globe valve manufactured by Rockwell.

X-7C

Main Steam Isolation Valves. MS-AO-80C (inboard isolation valve) and MS-AO-86C (outboard isolation valve).

In the August 1983 test, the initial leakage was found to be 12.93 cfh. The established limit is 5.0 scfh and the Technical Specification is 11.5 scfh per valve. MS-AO-86C was disassembled, the disc and seat of the main and pilot valve were lapped. After repair, the leakage was reduced to 1.6 cfh. MS-AO-80C was not repaired or adjusted; therefore, primary containment would have been maintained by the inboard isolation valve MS-AO-80C. The leaking valve is a 24" air operated angle globe valve manufactured by Rockwell.

X-7D

Main Steam Isolation Valves. MS-AO-80D (inboard isolation valve) and MS-AO-86D (outboard isolation valve).

In the August 1983 test, the initial leakage was found to be 20.2 cfh. The established limit is 5.0 scfh and the Technical Specification is 11.5 scfh per valve. Leakage was determined

to be 6.92 cfh through MS-AO-80D and 13.28 cfh through MS-AO-86D. MS-AO-80D and MS-AO-86D were both disassembled, the discs and seats of the main and pilot valves were lapped. Even though both valves were repaired, MS-AO-80D initial leakage was below the Technical Specification limit of 11.5 scfh. Both valves are a 24" air operated angle globe valve manufactured by Rockwell.

#### X-8

Main Steam Line Drain. MS-MO-74 (inboard isolation valve) and MS-MO-77 (outboard isolation valve).

In the May 1981 test, the initial leakage was found to be 18.28 cfh. The established limit is 1.5 scfh. MS-MO-74 was disassembled, the disc removed and lapped, the seats were cleaned, and the valve reassembled. After repair, the leakage was .23 scfh.

In the July 1982 test, the initial leakage was found to be 20.09 cfh. The established limit is 1.5 scfh. MS-MO-74 was disassembled, the disc and seat cleaned, and the valve reassembled. After repair, the leakage was 0 scfh.

In the August 1983 test, the initial leakage was found to be 9.19 cfh. The established limit is 1.5 scfh. MS-MO-74 was disassembled, the disc and seat were lapped, and the valve reassembled. MS-MO-77 was disassembled, the gate and seat were lapped, and the valve was reassembled. After repair, the leakage was 0 scfh. MS-MO-74 is an Anchor 3" gate valve and MS-MO-77 is an Anchor 3" gate valve.

#### X-9A

Reactor Feedwater Supply Line. RF-16CV (inboard line A feedwater check valve).

In the August 1983 test, the initial leakage was found to be 1059.6 cfh. The established limit is 5.0 scfh. RF-16CV was disassembled and the seat was lapped. A new valve disc was installed with a soft seat ring. The hinge pins, bushings, pressure seals, and seal rings were replaced. After the repair, leakage was reduced to 0 scfh. RF-16CV is an Anchor 18" tilting disc check valve.

#### X-9A

Reactor Feedwater Supply Line. RF-15CV (outboard line A feedwater check valve), RCIC-AO-22 (RCIC pump discharge testable check valve), and RCIC-MO-17 (RCIC pump discharge testable check valve bypass).

In the August 1983 test, the initial leakage could not be accurately measured, but it was determined to exceed established limits. The established limit is 7.0 scfh. RF-15CV was disassembled and the seat was lapped. A new valve disc was installed with a soft seat ring. The hinge pins, bushings, pressure seals, and seal rings were replaced. After the repair, leakage was reduced to 0 scfh. RF-15CV is an Anchor 18" tilting disc check valve.

#### X-9B

Reactor Feedwater Supply Line. RF-14CV (inboard line B feedwater check valve).

In the August 1983 test, the initial leakage could not be accurately measured, but it was determined to exceed established limits. The established limit is 5.0 scfh. RF-14CV was disassembled and the seat was lapped. A new valve disc was installed with a soft seat ring. The hinge pins, bushings, pressure seals, and seal rings were replaced. After the repair, leakage was reduced to 0 scfh. RF-14CV is an Anchor 18" tilting disc check valve.

#### X-9B

Reactor Feedwater Supply Line. RF-13CV (outboard line B feedwater check valve), HPCI-AO-18 (HPCI pump discharge testable check valve), and HPCI-MO-57 (HPCI pump discharge testable check valve bypass).

In the August 1983 test, the initial leakage could not be accurately measured, but it was determined to exceed established limits. The established limit is 7.0 scfh. RF-13CV was disassembled and the seat was lapped. A new valve disc was installed with a soft seat ring. The hinge pins, bushings, pressure seals, and seal rings were replaced. HPCI-AO-18 was disassembled, the disc and seat were lapped, and the valve was reassembled. HPCI-MO-57 was disassembled, the disc and seat were lapped, and the valve was reassembled. After the repair, leakage was reduced to 0 scfh. RF-13CV is an Anchor 18" tilting disc check valve, HPCI-AO-18 is an Atwood & Morrill 14" testable check valve, and HPCI-MO-57 is a Conval 2" globe valve.

#### X-10

RCIC Turbine Steam Supply Line. RCIC-MO-15 (inboard isolation valve) and RCIC-MO-16 (outboard isolation valve).

In the July 1982 test, the initial leakage was found to be 17.79 cfh. The established limit is 2.0 scfh. RCIC-MO-15 was disassembled and the gate was lapped. After repair, the leakage was reduced to 1.87 cfh.



In the August 1983 test, the initial leakage was found to be 7.74 cfh. The established limit is 2.0 scfh. RCIC-MO-16 was disassembled, the gate lapped, the seat cleaned, and the valve was reassembled. After repair, the leakage was reduced to .89 cfh. RCIC-MO-15 and RCIC-MO-16 are Anchor 3" gate valves with Limitorque motor operators.

#### X-13A

RHR Loop "A" Supply to RPV. RHR-MO-25A (loop "A" inboard injection block) and RHR-MO-27A (loop "A" outboard injection block).

In the May 1981 test, the initial leakage was found to be 34.12 cfh. The established limit is 10 scfh. RHR-MO-25A was disassembled and the seats were lapped, seal rings replaced and reassembled. After repair of RHR-MO-25A, the leakage was 0 scfh.

In the August 1983 test, the initial leakage was found to be 40.53 cfh. The established limit is 10 scfh. RHR-MO-25A was disassembled, found a hair line crack through the gate, welded the crack in the gate, and machined the gate seating surface. The valve seat was lapped and the valve was reassembled. RHR-MO-27A was not repaired or adjusted; therefore, primary containment would have been maintained by this valve. After repair, the leakage was reduced to 8.27 cfh. RHR-MO-25A is an Anchor 24" gate valve.

#### X-14

RWCU, Inlet to RWCU System. RWCU-MO-15 (supply inboard isolation) and RWCU-MO-18 (supply outboard isolation).

In the May 1981 test, the initial leakage was found to be 39.67 cfh. The established limit is 2.0 scfh. RWCU-MO-15 and RWCU-MO-18 were disassembled and gates removed and lapped, seals cleaned and reassembled. After reassembly, the leakage check was 39.6 scfh. The leakage was determined to be from RWCU-MO-15. Even though the leakage was above the established limit, further repair was not initiated because of the safety margin in the established limits. Primary containment would be maintained by the outboard isolation valve.

In the July 1982 test, the initial leakage was found to be 75.38 cfh. The established limit is 2.0 scfh. RWCU-MO-15 was removed and replaced with a new valve identical to the original. After the new valve was installed, the leakage was .99 scfh.

In the August 1983 test, the initial leakage was found to be 14.28 cfh. The established limit is 2.0 scfh. RWCU-MO-15 was disassembled, the seat and disc lapped, and the valve was reassembled. After repair, the leakage was reduced to .40 cfh. RWCU-MO-15 and MO-18 are Anchor 6" gate valves.

#### X-25

Purge and Vent Supply to Drywell. PC-232MV (inboard isolation valve) and PC-238AV (outboard isolation valve).

In the August 1983 test, the initial leakage was found to be 353.46 cfh. The established limit is 5.0 scfh. PC-232MV was disassembled and the rubber seating ring was replaced. After repair, the leakage was reduced to 1.73 cfh. PC-232MV and PC-238AV are Allis-Chalmers 24" butterfly valves.

#### X-26

Purge and Vent Exhaust from the Drywell. PC-231MV (inboard isolation valve), PC-306MV (inboard isolation valve bypass), PC-246AV (outboard isolation valve), and ACAD-1310MV (ACAD drywell vent).

In the August 1983 test, the initial leakage was found to be 78.7 cfh. The established limit is 5.0 scfh. PC-306MV was disassembled, the seat and gate were lapped, and the valve was reassembled. After repair, the leakage was reduced to 4.83 cfh. PC-246AV and ACAD-1310MV were not repaired or adjusted; therefore, primary containment would have been maintained by the outboard isolation valves. PC-306MV is an Anchor 2" gate valve.

#### X-39B

ACAD "B" Loop Supply to the Drywell. ACAD-1311MV inboard isolation valve) and ACAD-1312MV (outboard isolation valve).

In the May 1981 test, the initial leakage was found to be .39 cfh. The established limit is 0.1 scfh. ACAD-1311 Limitorque motor operator was adjusted. After adjustment the leakage was reduced to .08 scfh.

In the August 1983 test, the initial leakage was found to be 0.46 cfh. The established limit is 0.1 scfh. ACAD-1311MV was replaced with a new valve identical to the old one. After repair, the leakage was reduced to 0.09 cfh. ACAD-1311MV is an Anchor 1" gate valve.



#### X-205

ACAD Purge Supply Line to the Suppression Chamber, ACAD-1303MV (outboard isolation valve) and ACAD-1304MV (inboard isolation valve).

In the May 1982 test, the initial leakage was too rapid to determine an initial leak rate. The established limit is .1 scfh. The gate was removed and lapped, the seats were cleaned, and the valve reassembled. Retest indicated ACAD-1303MV was not shutting tightly. A new Limitorque was installed on the valve. After replacement of the Limitorque, the leak rate was reduced to .007 scfh. ACAD-1304MV was not repaired or adjusted; therefore, primary containment would have been maintained by the inboard isolation valve ACAD-1304MV. The leaking valve is an Anchor 1" gate valve with a Limitorque operator.

#### X-210B

RHR Loop "B" Minimum Flow Line. RHR-MO-16B (RHR pumps minimum flow bypass), RHR-11CV (RHR pump B minimum flow check valve), and RHR-13CV (RHR pump D minimum flow check valve).

In the August 1983 test, the initial leakage was found to be 1704.49 cfh. The established limit is 1.0 scfh. RHR-MO-16B was disassembled, the seat and disc was lapped, and the valve was reassembled. RHR-11CV and RHR-13CV were disassembled, the discs and seats were cleaned, and the valves were reassembled. After repair, the leakage was reduced to 0.71 cfh. RHR-MO-16B is an Anchor 4" gate valve. RHR-11CV and RHR-13CV are Anchor 3" check valves.

#### X-210B & 211B

RHR to Suppression Pool, RHR-MO-34B (suppression pool cooling inboard isolation valve) RHR-MO-38B (suppression pool inboard spray isolation valve) and RHR-MO-39B (suppression pool cooling and spray outboard isolation valve).

In the May 1981 test, the initial leakage was found to be 210 cfh. The established limit is 8.0 scfh. RHR-MO39B was disassembled, the seats and gate were lapped, and a new bonnet gasket installed. The valve was reassembled and tested. After repair of RHR-MO-39B, the leakage was 1.68 cfh. RHR-MV-34B and RHR-MO-38B were not repaired or adjusted.

In the July 1982 test, the initial leakage was found to be 126.12 cfh. The established limit is 8.0 scfh. RHR-MO-34B was disassembled, the seat was lapped, the disc seating surface was cut down on a lathe, and a new bonnet gasket installed. RHR-MO-38B was disassembled, the seat and plug were cleaned,

and a new bonnet gasket installed. RHR-MO-39B was disassembled, the seat was lapped, and a new bonnet gasket installed. After repairing these valves, the leakage was 13.0 cfh. Even though the leakage was above the established limit, further repair was not initiated because of the safety margin in the established limits.

In the August 1983 test, the initial leakage was found to be 44.14 cfh. The established limits is 8.0 scfh. RHR-MO-34B was disassembled, the seat was machined, the disc seating surface was weld built up and machined, and the valve was reassembled. RHR-MO-39B was disassembled, the seat and gate were machined, and the valve was reassembled. After repairing these valves, the leakage was reduced to 1.26 cfh. RHR-MO-34B is an Anchor 18" globe valve, RHR-MO-39B is an Anchor 18" gate valve, and RHR-MO-34B is an Anchor 18" globe valve.

#### X-212

RCIC Turbine Exhaust to the Suppression Chamber, RCIC-15CV and RCIC-37.

In the May 1981 test, the initial leakage was found to be 9.3 cfh. The established limit is 1.0 scfh. RCIC-37 was disassembled for repair and indicated rough seating surfaces. The seats were lapped and the disc cleaned and the valve reassembled. After repair to RCIC-37, the leakage rate was 2.3 scfh. Even though the leakage was above established limit, further repair was not initiated because of the safety margin in the established limits.

In the July 1982 test, the initial leakage was found to be 9.87 cfh. The established limit is 1.0 scfh. RCIC-15CV was disassembled, the seat was lapped, the disc was cleaned, and a new gasket was installed. RCIC-37 was disassembled, the seat and disc were cleaned, and a new bonnet gasket was installed. After repairs, the leakage was reduced to 2.47 cfh. Even though this value was above the established limit, further repair was not initiated because of the safety margin in the established limit.

In the August 1983 test, the initial leakage was found to be 48.86 cfh. The established limit is 1.0 scfh. RCIC-37 was replaced with a new valve identical to the old one. RCIC-15CV was disassembled, the seat was lapped, the seating surface of the disc was machined, and the valve was reassembled. After repair, the leakage was reduced to 0.98 cfh. RCIC-15CV is an Anchor 8" check valve and RCIC-37 is an Anchor 8" globe valve.

#### X-214

HPCI Turbine Exhaust to the Suppression Chamber, HPCI-15CV and HPCI-44.

In the July 1982 test, the initial leakage was found to be 10.11 cfh. The established limit is 2.0 scfh. HPCI-15CV was disassembled and the disc and seat were lapped. After repair, the leakage was 2.89 scfh. Even though the leakage was above the established limit, further repair was not initiated because of the safety margin in the established limits. HPCI-15CV is an Anchor 20" check valve.

#### X-220

Primary Containment Purge and Vent Exhaust From Suppression Chamber. PC-MO-230 (inboard isolation valve) PC-AO-245 (outboard isolation valve). PC-57MV (inboard isolation bypass) and ACAD-1308MV (ACAD torus vent).

In the May 1981 test, the initial leakage was too rapid to determine an initial leak rate. The established limit is 5.0 scfh. PC-AO-245 was disassembled and the rubber seating ring replaced. After repair, the leakage was 2.8 scfh. PC-230MV and PC-57MV were not repaired or adjusted. Therefore, primary containment would have been maintained by the inboard isolation valves.

In the July 1982 test, the initial leakage was too rapid to determine an initial leak rate. The established limit is 5.0 scfh. PC-AO-245 was disassembled and the rubber seating ring replaced. After repair, the leakage was 2.84 scfh. PC-MO-230 and PC-MO-305 were not repaired or adjusted; therefore, primary containment would have been maintained by the inboard isolation valves.

In the August 1983 test, the initial leakage was found to be 113.8 cfh. The established limit is 5.0 scfh. PC-230MV was disassembled and the rubber seating ring replaced. After repair, the leakage was 4.55 cfh. PC-245AV was not repaired or adjusted; therefore, primary containment would have been maintained by the outboard isolation valve. PC-230MV and PC-245AV are Allis-Chalmers 24" butterfly valves.

#### X-221

RCIC Vacuum Pump Discharge to Suppression Chamber.

The test volume for this penetration is between RCIC-12CV and manual valve RCIC-42. In the May 1981 test, initial leakage

was found to be 2.23 cfh. The established limit is .1 scfh. RCIC-12CV was disassembled and was found to have a dirty seat causing improper seating. The seat was cleaned and the valve reassembled. After reassembly and retest, the leakage was .09 scfh. RCIC-12CV is an Anchor 2", 600# check valve.

#### X-223B

Core Spray Pump "B" Minimum Flow Recirc Isolation.

The test volume for this penetration is between CS-MOV-MO5B and CS-V-25. In the May 1981 test, the initial leaking test showed a leak rate of 7.86 cfh. The established limit is 1.0 scfh. CS-MO-5B and CS-V-25 were both disassembled. New seat rings were installed in CS-MOV-5B and the gate was lapped followed by blue check of seats. The stem and seats of CS-V-25 were cleaned and reassembled with new gasket. After repair to the two valves, the retest leakage was .13 scfh.

In the August 1983 test, the initial leakage was found to be 881.6 cfh. The established limit is 1.0 scfh. CS-MO-5B was disassembled, a new seat installed, the gate was lapped, and the valve reassembled. After repair, the leakage was 0 cfh. CS-MO-5B is an Anchor 3" gate valve and CS-V-25 is an Anchor 3" globe valve.

#### X-225A

RHR Pump "A" Suction from Torus. RHR-MO-13A (suction isolation valve).

In the August 1983 test, the initial leakage was found to be 4.61 cfh. The established limit is 3.0 scfh. RHR-MO-13A was disassembled, the seat was lapped, a new disc installed, and the valve reassembled. After repair, the leakage was reduced to 3.0 cfh. RHR-MO-13A is an Anchor 20" gate valve.

#### X-226

HPCI Pump Suction from the Suppression Chamber, HPCI-MO-58.

In the July 1982 test, the initial leakage was found to be 15.96 cfh. The established limit is 3.0 scfh. HPCI-MO-58 was disassembled, the seat and gate were lapped, and a new bonnet gasket installed. After repair, the leakage was 3.755 cfh. Even though the leakage was above the established limit, further repair was not initiated because of the safety margin in the established limits.

In the August 1983 test, the initial leakage was found to be 25.91 cfh. The established limit is 3.0 scfh. HPCI-MO-58 was disassembled, the gate and seat were polished, and the valve was reassembled. After repair, the leakage was 4.44 cfh. Even though the leakage was above the established limit, further repair was not initiated because of the safety margin in the established limits. HPCI-MO-58 is an Anchor 16" gate valve.

ATTACHMENT A

TEST INSTRUMENTATION

### Test Instrumentation

Instruments used in the ILRT are listed below.

Table A-1: Pressure,  $\Delta P$  and Flow Instruments

<u>Manufacturer</u>	<u>Model</u>	<u>Use</u>
Heise (0-100 psig)	CMM	Drywell Pressure
Heise (0-100 psig)	CMM	Ref. Chamber Pressure
Texas Inst.	145-01	Drywell/Ref. Chamber $\Delta P$
Texas Inst.	145-01	Containment Absolute Pressure
Fischer & Porter	10A3565	Superimposed Flow

Table A-1: Temperature and Dew Cell Instruments

<u>Instrument</u>	<u>Location</u>	<u>Weighting Factor</u>	<u>Manufac- turer (1)</u>
TE-500A	Drywell-905' Level-Beside Fan Coil Unit A	0.0270	+
TE-500B	Drywell-905' Level-Beside Fan Coil Unit B	0.0270	+
TE-500C	Drywell-905' Level-Beside Fan Coil Unit C	0.0270	+
TE-500D	Drywell-905' Level-Beside Fan Coil Unit D	0.0270	+
TE-501B	Drywell-915' Level-Back Fan Coil Unit B	0.0270	+
TE-501C	Drywell-915' Level-Back Fan Coil Unit C	0.0270	+
TE-501D	Drywell-915' Level-Back Fan Coil Unit D	0.0270	+
TE-502A	Drywell-901' Level-Near RR Pump A-Under Grating	0.0750	0
TE-502B	Drywell-901' Level-Near RR Pump B-Under Grating	0.0750	+
TE-505A	Drywell-959' Level-0°	0.0300	0
TE-505C	Drywell-959' Level-144°	0.0300	0
TE-505E	Drywell-959' Level-288°	0.0300	0
TE-510A	Drywell-976' Level-0°	0.0250	0
TE-510B	Drywell-976' Level-72°	0.0250	0
TE-510C	Drywell-976' Level-144°	0.0250	0
TE-510D	Drywell-976' Level-216°	0.0250	0
TE-PC-1	Torus-North Side-Bay #7-0°	0.1180	*
TE-PC-2	Torus-West Side-Bay #2-90°	0.1180	*
TE-PC-3	Torus-South Side-Bay #16-180°	0.1180	*
TE-PC-4	Torus-East Side-Bay #10-270°	0.1180	*
ME-PC-5	Drywell-905' Level-Front of Personnel Hatch	0.1500	F
ME-PC-6	Drywell-910' Level-South Side Fan Coil Unit A	0.1500	F
ME-PC-7	Drywell-910' Level-West Side RR Pump B	0.1000	F
ME-PC-8	Drywell-938' Level-South East Side	0.1500	F
ME-PC-9	Torus-South Side-Bay #16-180°	0.2250	F
ME-PC-10	Torus-North Side-Bay #7-0°	0.2250	F

- 
- (1) \* - Foxboro Platinum (100Ω)  
+ - YSI Sostman Platinum (100Ω)  
0 - YSI Sostman Nickel (100Ω)  
F - Foxboro



ATTACHMENT B

REFERENCE CHAMBER TEST DATA

# Reference Chamber Test

From August 31, 1983 at 1400 hours to September 1, 1983 at 2200 hours.

<u>Data Set</u>	<u>Hours from T=0</u>	<u>Press. Abs.</u>	<u>Average Temp.</u>	<u>Total LR(%)*</u>
1	0	75.482	107	--
2	1	75.500	107.25	.486
3	2	75.525	107.25	-.154
4	3	75.561	107	-.008
5	4	75.571	108	.004
6	5	75.587	107.75	-.033
7	6	75.587	107.75	-.027
8	7	75.592	107.75	-.046
9	8	75.530	106.25	-.588
10	9	75.509	106.25	-.449
11	10	75.502	106.25	-.382
12	11	75.515	106.25	-.384
13	12	75.463	105	-.657
14	13	75.426	104.25	-.762
15	14	75.400	104	-.725
16	15	75.388	103.75	-.722
17	16	75.379	104.25	-.525
18	17	75.378	104.25	-.492
19	18	75.340	104.75	-.279
20	19	75.352	104.50	-.341
21	20	75.351	104.50	-.322
22	21	75.310	103	-.550
23	22	75.300	103.25	-.460
24	23	75.311	103.25	-.457
25	24	75.330	103.75	-.374
26	25	75.342	103.75	-.374
27	26	75.356	104.50	-.254
28	27	75.356	105	-.166
29	28	75.39	105.25	-.161
30	29	75.39	106	-.045
31	30	75.39	105.5	-.114
32	31	75.388	105.75	-.074
33	32	75.389	106	-.046

$$\text{*Percent Leak Rate} = 1 - \left( \frac{T_1 P_2}{T_2 P_1} \right) (100) \left( \frac{24}{h} \right)$$

$T_1$  = Mean absolute temperature of the containment structure air at the beginning of the test.

$T_2$  = Mean absolute temperature of the containment structure air at the end of each hourly test period.

$P_1$  = Total absolute pressure in the containment structure at the beginning of the test.

$P_2$  = Total absolute pressure in the containment structure at the end of each hourly test period.

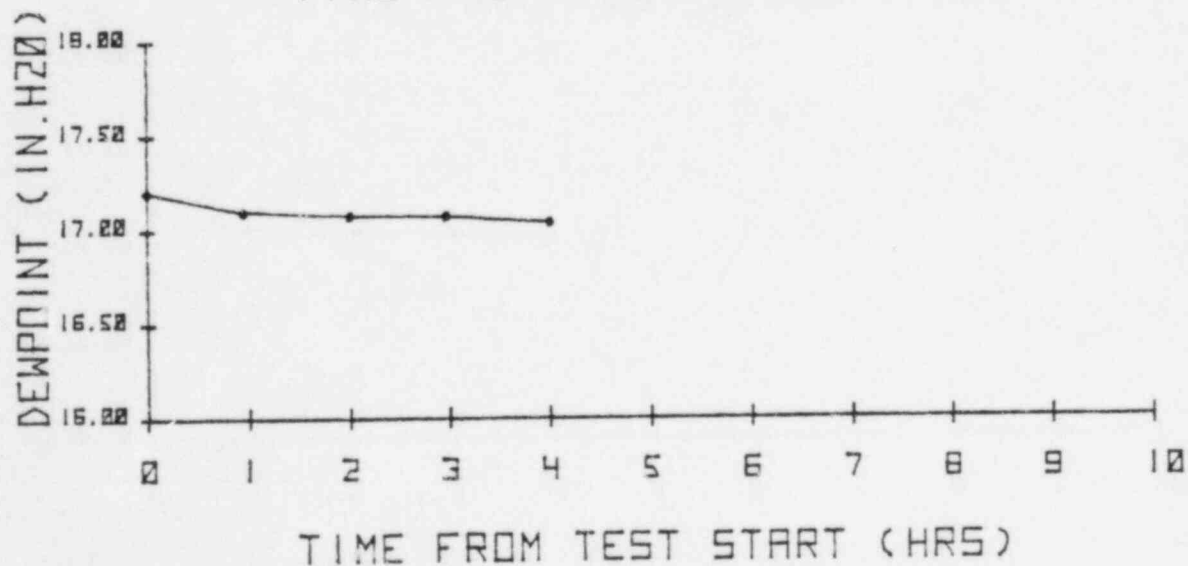
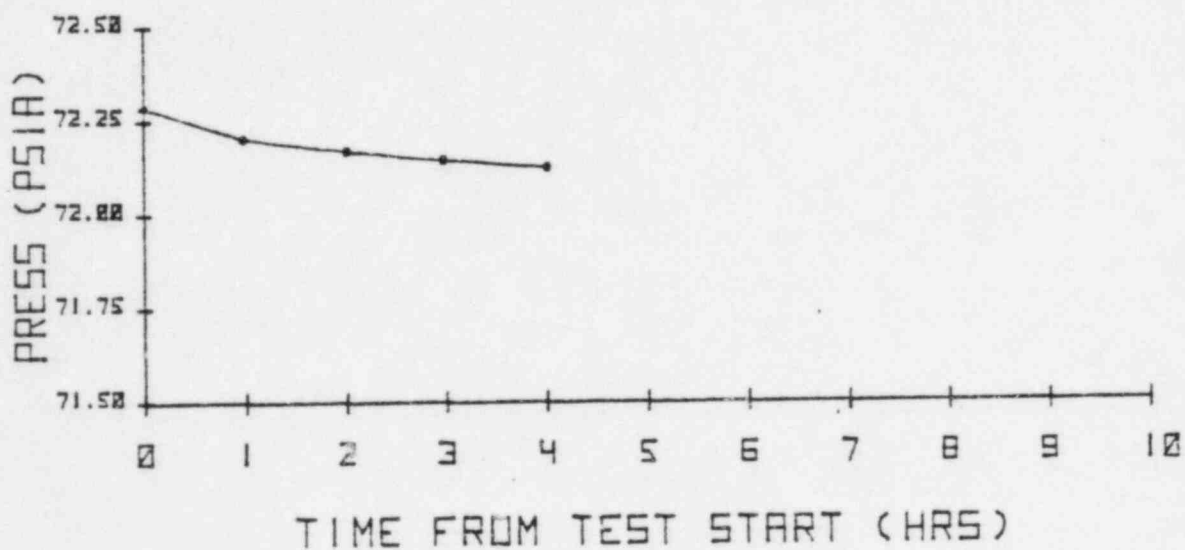
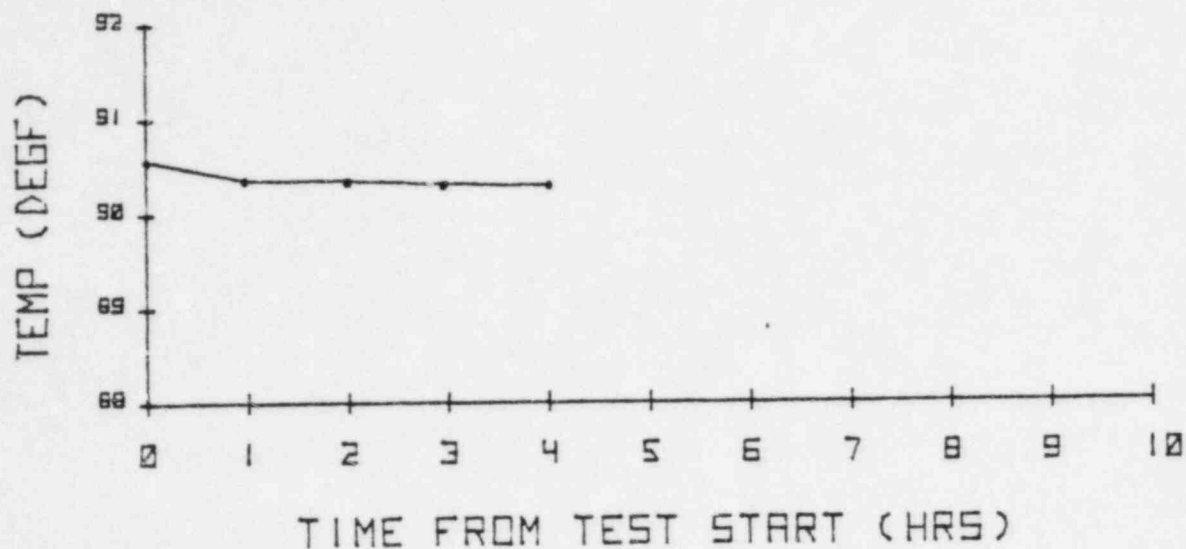
$h$  = Length of test interval (hours).

ATTACHMENT C: 8 HOUR TEST SUMMARY  
DATA AND GRAPHS

COOPER

IPCLRT--STABILIZATION PERIOD

8/26/83



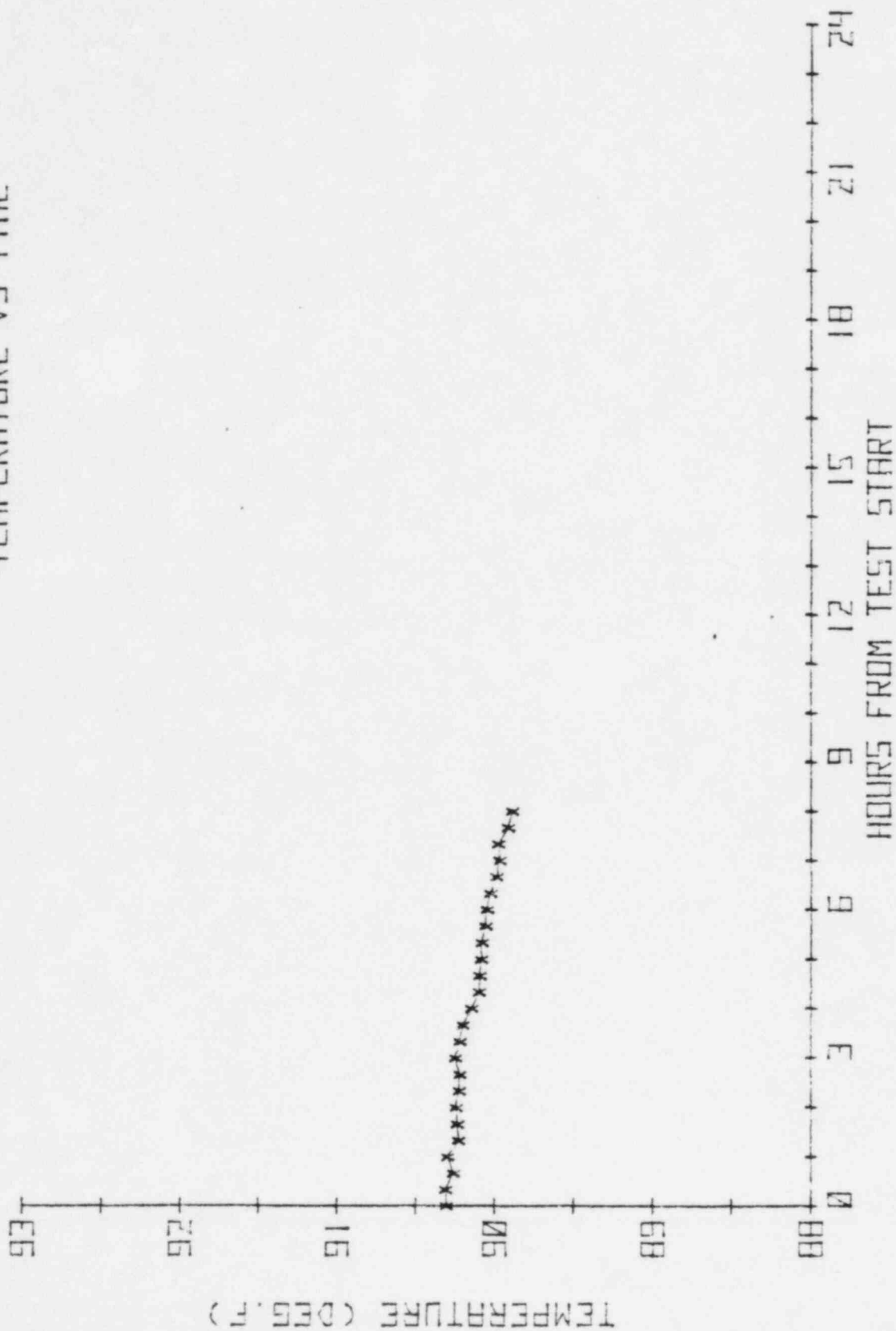
COOPER1

DATE: 8/ 27/ 83

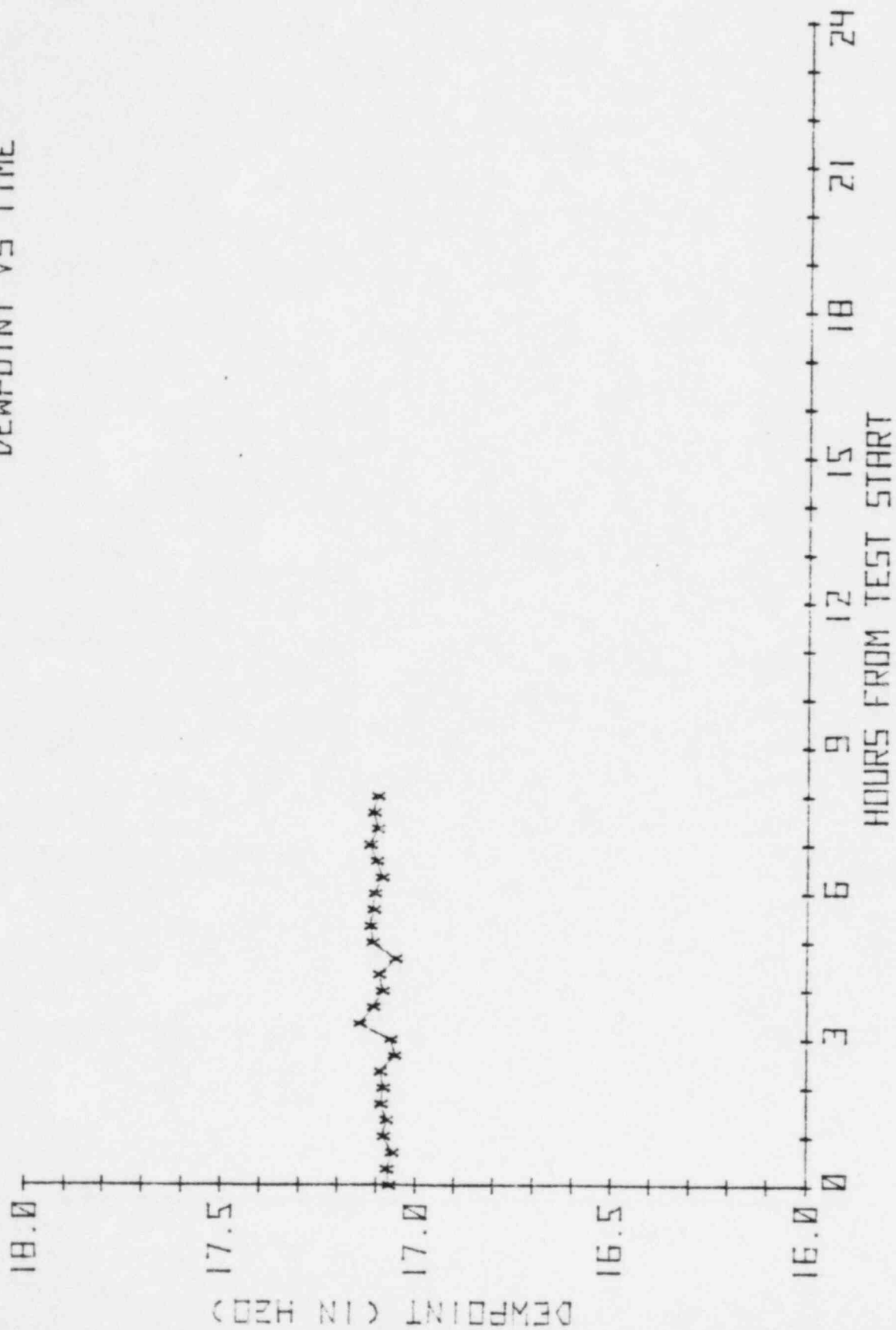
IPCLRT--SUMMARY OF INPUT DATA

DATA SET NO	HRS. FROM T=0	REF. CONT DP PSID	CONT. PRESS. PSIA	AVG. TEMP. DEG. F	AVG. DEWPOINT IN. H2O
1	0.00	0.9614	72.110	90.306	17.0680
2	0.33	0.9614	72.110	90.310	17.0732
3	0.67	0.9630	72.102	90.261	17.0680
4	1.00	0.9678	72.098	90.297	17.0823
5	1.33	0.9691	72.093	90.228	17.0748
6	1.67	0.9696	72.088	90.236	17.0886
7	2.00	0.9705	72.083	90.245	17.0835
8	2.33	0.9765	72.076	90.225	17.0904
9	2.67	0.9750	72.074	90.220	17.0555
10	3.00	0.9750	72.070	90.249	17.0648
11	3.33	0.9741	72.064	90.220	17.1434
12	3.67	0.9764	72.064	90.200	17.1088
13	4.00	0.9806	72.056	90.144	17.0861
14	4.33	0.9796	72.051	90.098	17.0946
15	4.67	0.9805	72.046	90.094	17.0539
16	5.00	0.9819	72.044	90.083	17.1119
17	5.33	0.9814	72.040	90.080	17.1176
18	5.67	0.9874	72.034	90.057	17.1094
19	6.00	0.9846	72.029	90.046	17.1064
20	6.33	0.9892	72.021	90.026	17.0888
21	6.67	0.9859	72.017	89.988	17.1026
22	7.00	0.9908	72.017	89.969	17.1185
23	7.33	0.9870	72.008	89.978	17.1000
24	7.67	0.9937	72.001	89.915	17.1098
25	8.00	0.9958	71.996	89.889	17.0998

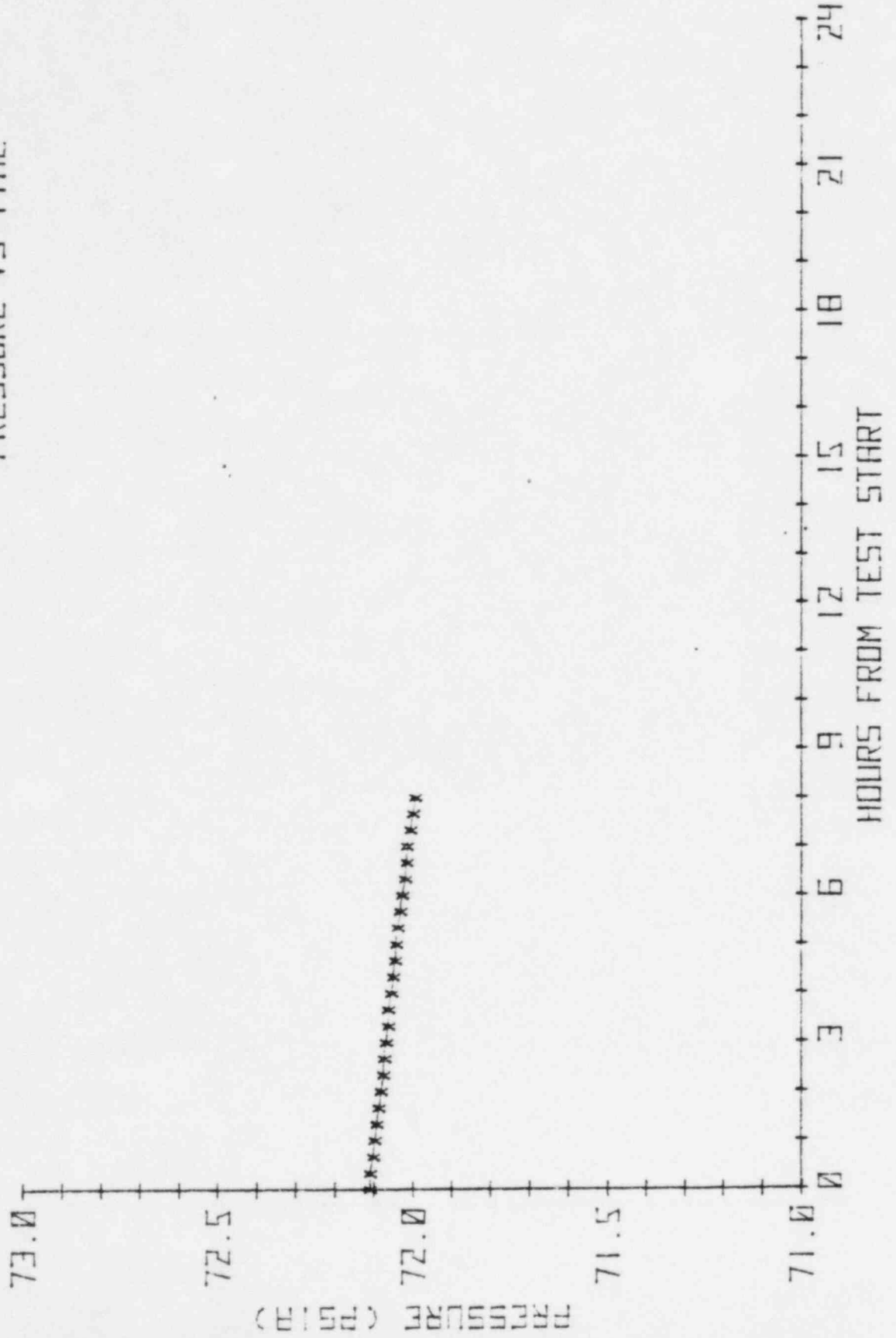
COOPER I  
IPCLRT 8/27/83  
TEMPERATURE VS TIME



COOPERI  
 IPCLRT 8/27/83  
 DEWPOINT VS TIME

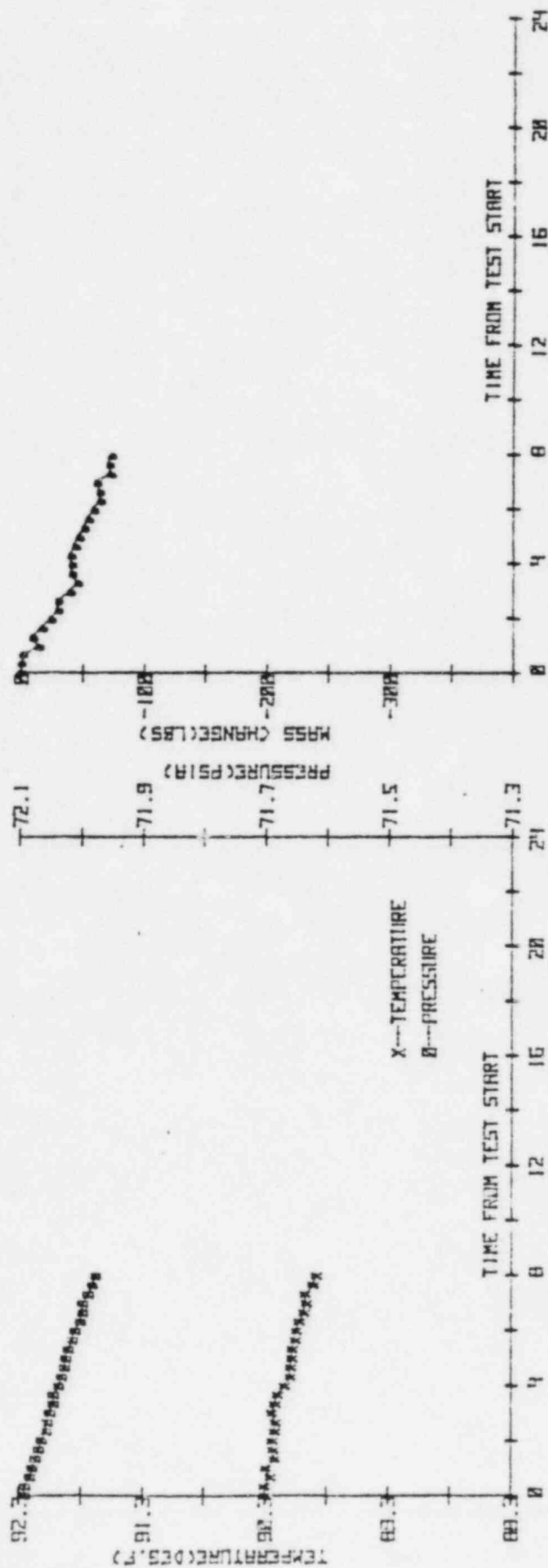
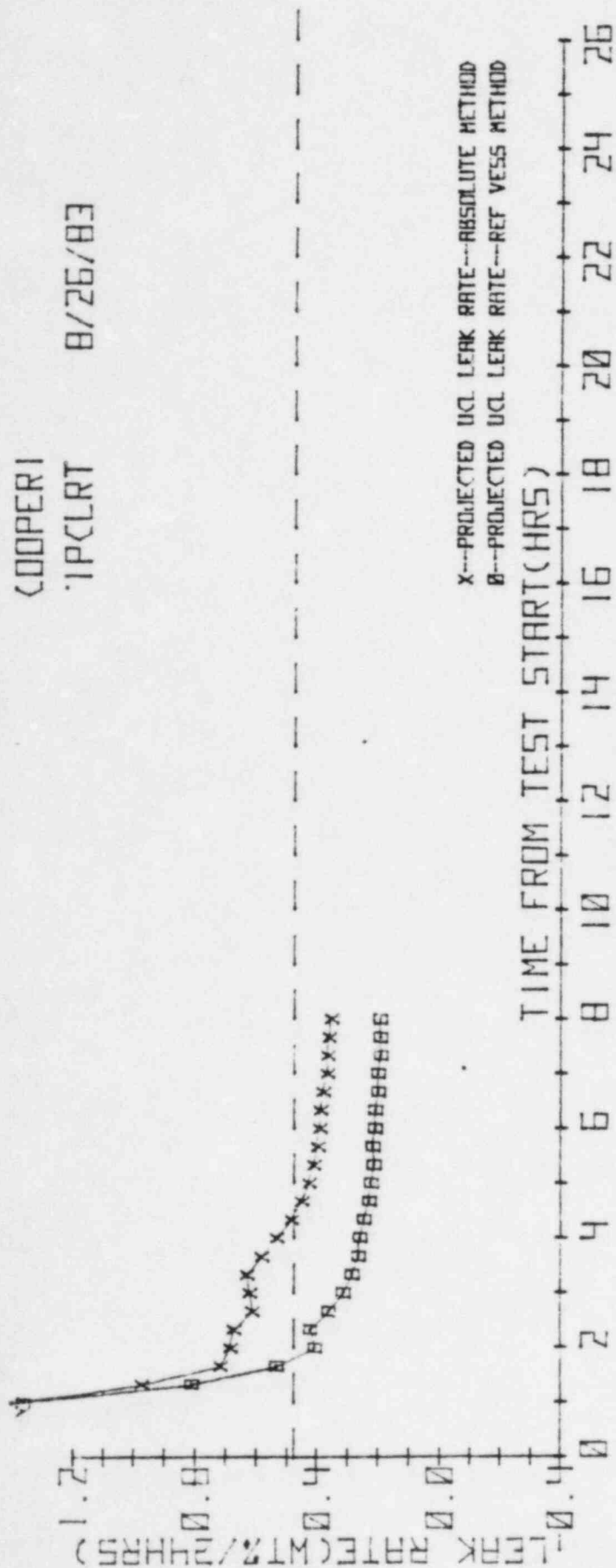


COOPER I  
IPCLRT 8/27/83  
PRESSURE VS TIME

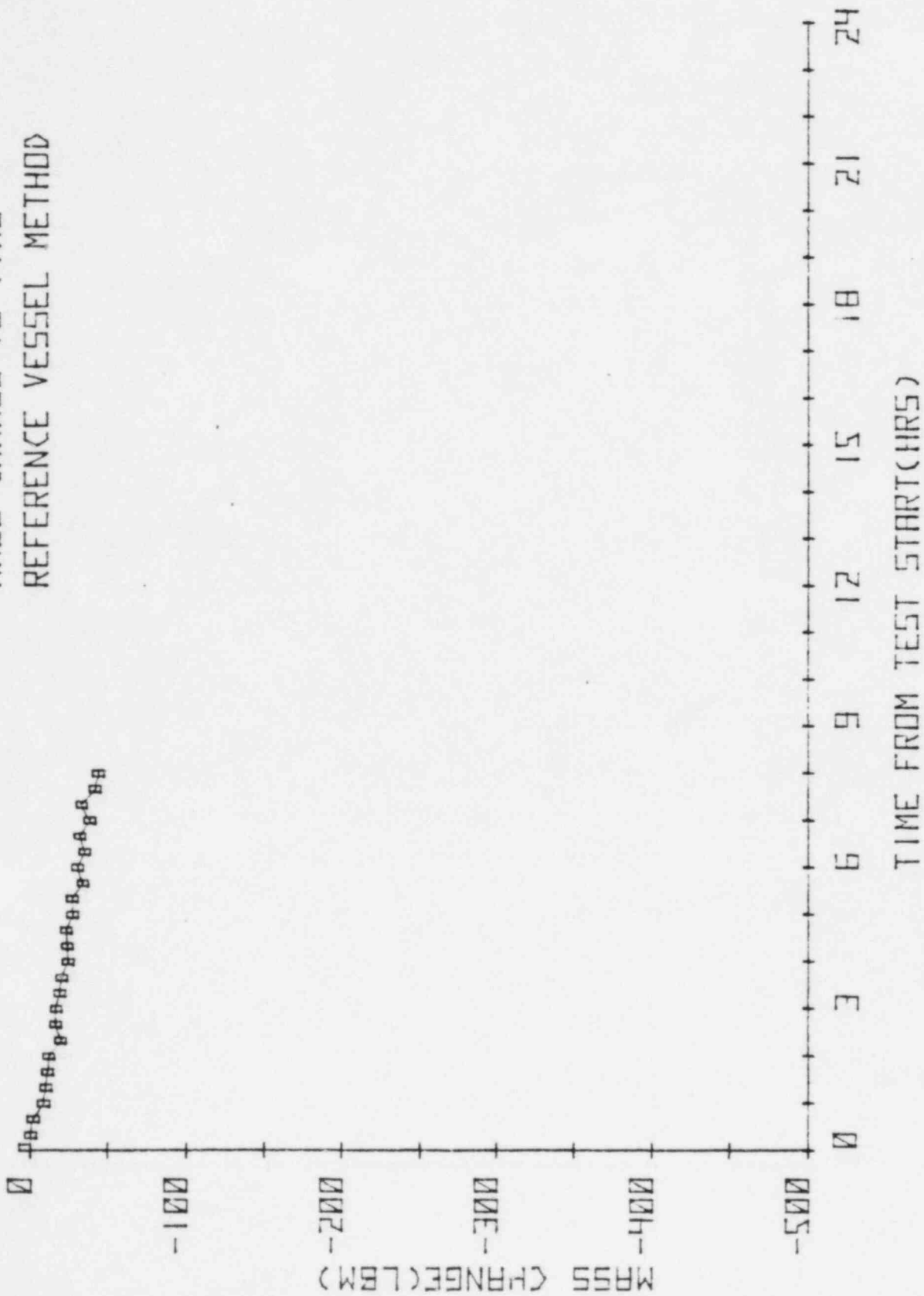




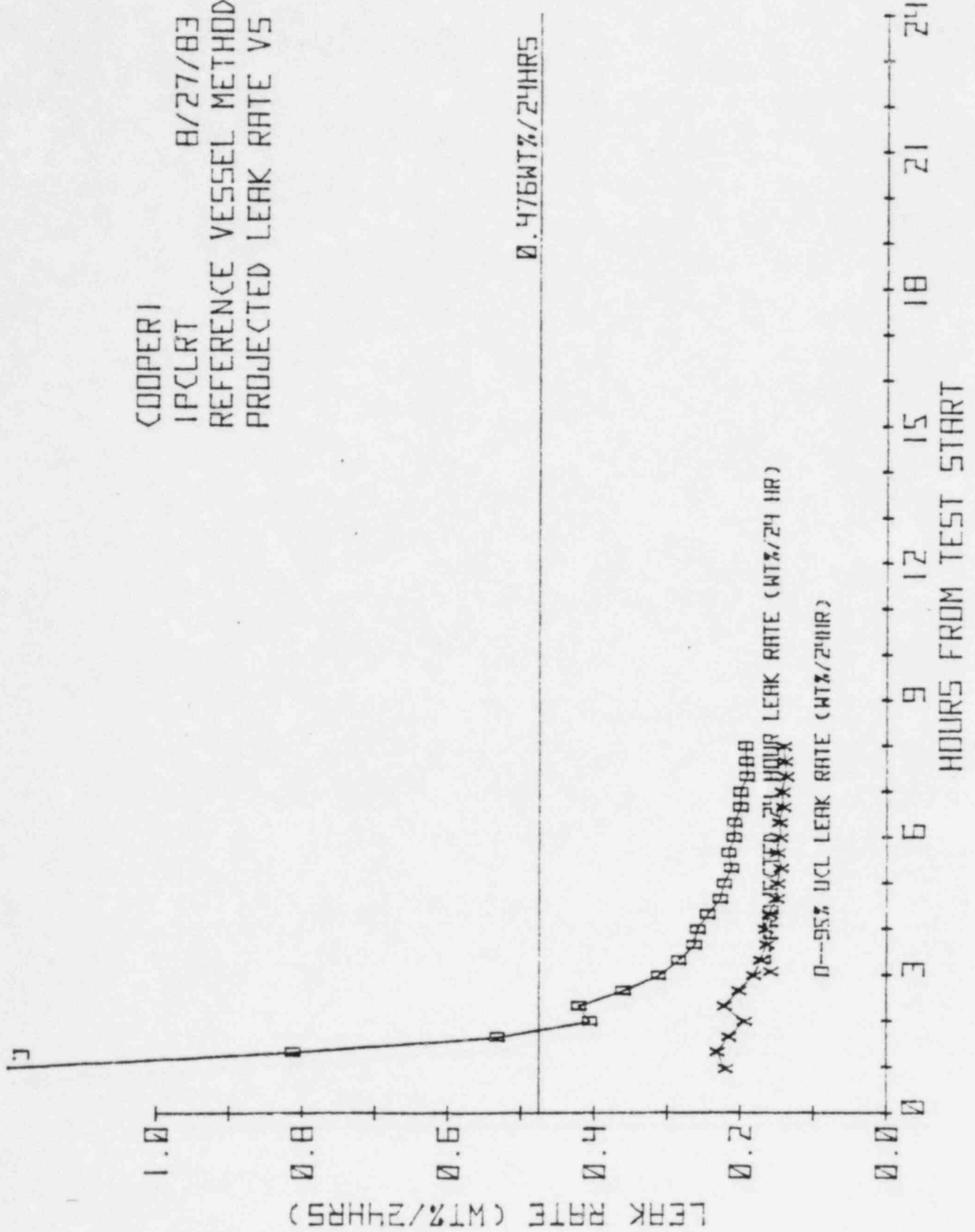
COOPERI  
IPCLRT  
8/26/83



COOPER I  
 IPCLRT 8/27/83  
 MASS CHANGE VS TIME  
 REFERENCE VESSEL METHOD



COOPERI  
 IPCLRT 8/27/83  
 REFERENCE VESSEL METHOD  
 PROJECTED LEAK RATE VS TIME



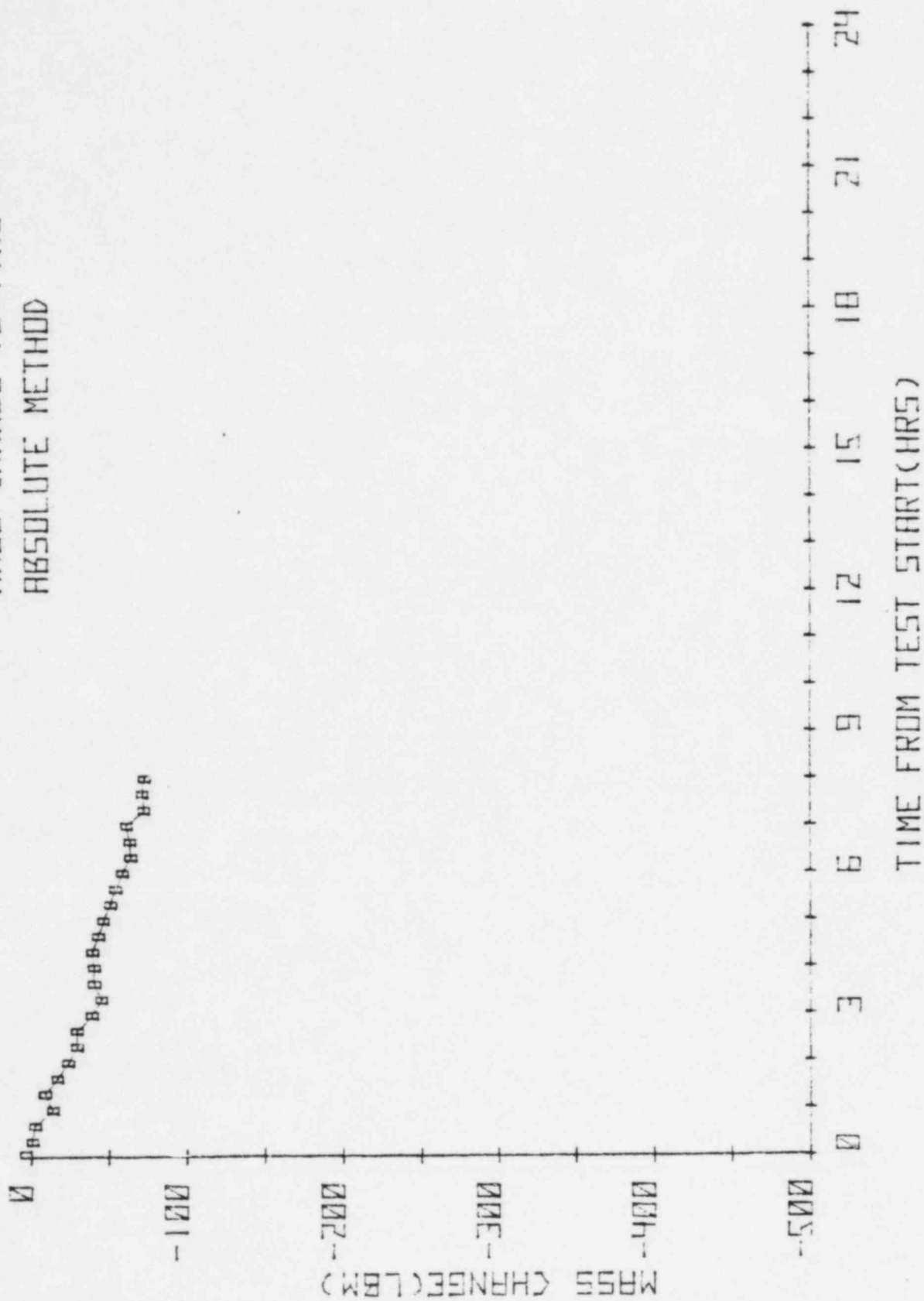
COOPER1

DATE: 8/ 27/ 83

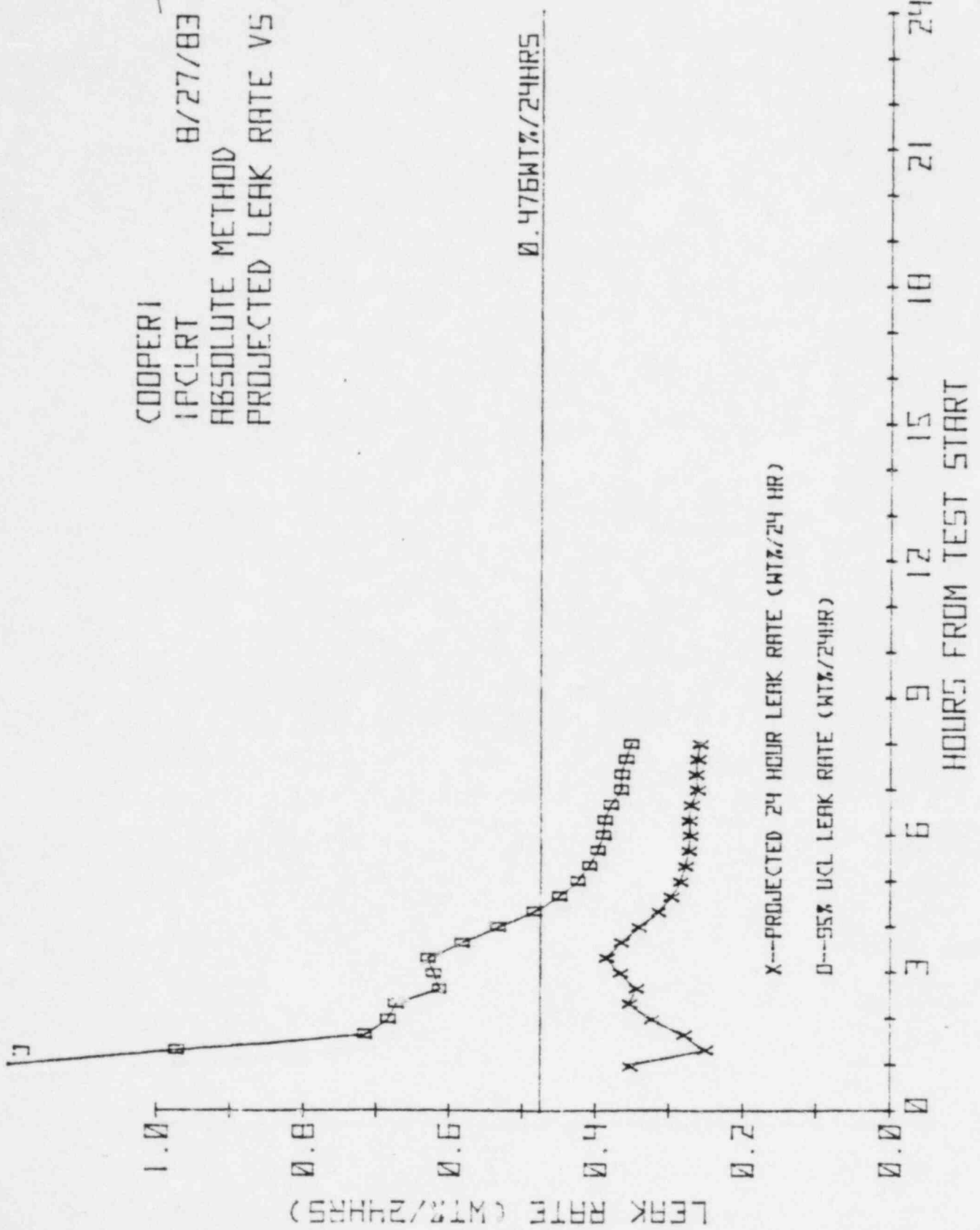
IPCLRT--SUMMARY OF REFERENCE VESSEL LEAK RATE CALCULATIONS

DATA SET NO.	HRS. FROM T=0	CONT. MASS LBS.	POINT-POINT LEAK RATE	TOTAL TIME LEAK RATE	PROJECTED 24HR LEAK RATE	95% UCL
1	0.00	85097.81	0.000	0.000	0.000	0.000
2	0.33	85097.60	0.010	0.010	0.000	0.000
3	0.67	85096.08	0.120	0.070	0.000	0.000
4	1.00	85089.55	0.550	0.230	0.230	1.626
5	1.33	85088.08	0.124	0.206	0.230	0.580
6	1.67	85086.92	0.098	0.184	0.216	0.317
7	2.00	85086.10	0.070	0.165	0.195	0.212
8	2.33	85078.59	0.635	0.202	0.223	0.199
9	2.67	85081.86	-0.277	0.169	0.202	0.159
10	3.00	85081.56	0.025	0.153	0.182	0.130
11	3.33	85079.16	0.203	0.158	0.172	0.113
12	3.67	85077.83	0.112	0.154	0.164	0.100
13	4.00	85073.62	0.357	0.171	0.166	0.094
14	4.33	85074.28	-0.056	0.153	0.160	0.086
15	4.67	85074.94	-0.056	0.138	0.151	0.078
16	5.00	85070.75	0.355	0.153	0.150	0.073
17	5.33	85071.09	-0.029	0.141	0.145	0.068
18	5.67	85064.22	0.581	0.167	0.150	0.067
19	6.00	85067.64	-0.290	0.142	0.146	0.063
20	6.33	85062.85	0.406	0.156	0.147	0.061
21	6.67	85066.05	-0.271	0.134	0.142	0.058
22	7.00	85059.46	0.558	0.154	0.144	0.057
23	7.33	85064.82	-0.453	0.127	0.138	0.053
24	7.67	85056.19	0.730	0.153	0.140	0.052
25	8.00	85054.03	0.183	0.154	0.142	0.052

COOPER I  
 1PCLRT 8/27/83  
 MASS CHANGE VS TIME  
 ABSOLUTE METHOD



COOPERI  
 IPCLRT 8/27/83  
 ABSOLUTE METHOD  
 PROJECTED LEAK RATE VS TIME



COOPER1

DATE: 9/ 27/ 83

## IFCLRT--SUMMARY OF ABSOLUTE METHOD LEAK RATE CALCULATIONS

DATA SET NO.	HRS. FROM T=0	CONT. MASS LBS.	POINT-POINT LEAK RATE	TOTAL TIME LEAK RATE	PROJECTED 24HR LEAK RATE	95% UCL
1	0.00	85097.81	0.000	0.000	0.000	0.000
2	0.33	85096.97	0.071	0.071	0.000	0.000
3	0.67	85095.54	0.121	0.096	0.000	0.000
4	1.00	85084.30	0.950	0.381	0.355	2.639
5	1.33	85089.31	-0.423	0.180	0.251	0.723
6	1.67	85081.54	0.657	0.275	0.279	0.437
7	2.00	85074.50	0.596	0.329	0.323	0.361
8	2.33	85068.93	0.471	0.349	0.354	0.319
9	2.67	85068.85	0.007	0.306	0.345	0.269
10	3.00	85059.14	0.822	0.364	0.367	0.255
11	3.33	85053.13	0.508	0.378	0.385	0.245
12	3.67	85057.72	-0.389	0.308	0.366	0.217
13	4.00	85057.80	-0.006	0.282	0.342	0.192
14	4.33	85058.69	-0.075	0.255	0.315	0.170
15	4.67	85054.97	0.315	0.259	0.297	0.153
16	5.00	85051.81	0.258	0.259	0.285	0.141
17	5.33	85047.34	0.378	0.267	0.278	0.131
18	5.67	85044.01	0.282	0.258	0.274	0.124
19	6.00	85039.63	0.370	0.273	0.272	0.118
20	6.33	85034.23	0.458	0.283	0.273	0.115
21	6.67	85034.75	-0.044	0.267	0.270	0.110
22	7.00	85037.02	-0.192	0.245	0.262	0.104
23	7.33	85025.77	0.953	0.277	0.264	0.101
24	7.67	85025.78	-0.085	0.251	0.251	0.098
25	8.00	85025.28	0.127	0.256	0.258	0.094

ATTACHMENT D: 8 HOUR TEST - INTERVAL DATA SETS

Absolute Method . . . . . D-2

Reference Chamber Method . . D-28



INTERVAL DATA SETS - ABSOLUTE METHOD

COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

DATA SET NUMBER 1  
DATE: 8/26/83 1540  
LAST INTERVAL, HOURS 0.00 HOURS FROM T=0 0.00

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.56( 0.00)	0.027	79.420( 0.000)	0.150
2	88.84( 0.00)	0.027	80.220( 0.000)	0.150
3	88.97( 0.00)	0.027	81.550( 0.000)	0.150
4	89.65( 0.00)	0.027	79.500( 0.000)	0.100
5	89.38( 0.00)	0.027	86.500( 0.000)	0.225
6	89.38( 0.00)	0.027	87.350( 0.000)	0.225
7	89.11( 0.00)	0.027		
8	90.37( 0.00)	0.075		
9	89.19( 0.00)	0.075		
10	89.86( 0.00)	0.030		
11	89.69( 0.00)	0.030		
12	90.20( 0.00)	0.030		
13	92.72( 0.00)	0.025		
14	90.03( 0.00)	0.025		
15	90.03( 0.00)	0.025		
16	90.37( 0.00)	0.025		
17	90.92( 0.00)	0.118		
18	91.05( 0.00)	0.118		
19	91.33( 0.00)	0.118		
20	90.37( 0.00)	0.118		

DRYWELL PRESSURE= 72.1100 ( 0.0000) PSIA  
AVG. CONT. TEMP= 90.306 ( 0.0000) DEG.F  
AVG. DEWPOINT PRESS= 0.616 ( 0.0000) PSIA

CONTAINMENT TOTAL MASS (DRY AIR)= 85097.81 POUNDS

NO LEAKAGE RATE VALUE CALCULATED FOR DATA SET #1

COOPER1  
PRIMARY CONTAINMENT ILRT---ABSOLUTE METHOD

DATA SET NUMBER 2  
DATE: 8/ 26/ 83 2000  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 0.33

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.56( 0.00)	0.027	79.500( 0.000)	0.150
2	88.84( 0.00)	0.027	79.900(-0.320)	0.150
3	88.97( 0.00)	0.027	81.550( 0.000)	0.150
4	89.65( 0.00)	0.027	79.500( 0.000)	0.100
5	89.52( 0.14)	0.027	86.700( 0.200)	0.225
6	89.52( 0.14)	0.027	87.350( 0.000)	0.225
7	89.25( 0.14)	0.027		
8	90.45( 0.00)	0.075		
9	89.19( 0.00)	0.075		
10	89.86( 0.00)	0.030		
11	89.69( 0.00)	0.030		
12	90.20( 0.00)	0.030		
13	92.72( 0.00)	0.025		
14	90.03( 0.00)	0.025		
15	90.03( 0.00)	0.025		
16	90.45( 0.00)	0.025		
17	90.92( 0.00)	0.110		
18	90.92(-0.13)	0.110		
19	91.33( 0.00)	0.110		
20	90.37( 0.00)	0.110		

DRYWELL PRESSURE= 72.1100 ( 0.0000) PSIA  
AVG. CONT. TEMP= 90.310 ( 0.0040) DEG.F  
AVG. DEWPOINT PRESS= 0.616 ( 0.0002) PSIA

INTERVAL 1 LEAK RATE= 0.071 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.071 WT%/24HRS

MASS PLOT-CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85096.97 POUNDS  
PROJECTED LEAK RATE NOT CALCULATED (<4 DATA SETS)

MAXIMUM ALLOWABLE LEAK RATE(0.75+LR)= 0.476 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

-----  
DATA SET NUMBER 4  
DATE: 8/ 26/ 83 2040  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 1.00

SENSOR #	TEMP( DEG. F)	WT. FACTOR	DEWPOINT (DEG. F)	WT. FACTOR
1	88.56( 0.00)	0.027	79.530( 0.030)	0.150
2	88.97( 0.13)	0.027	80.150( 0.150)	0.150
3	88.97( 0.00)	0.027	81.750( 0.030)	0.150
4	89.79( 0.14)	0.027	79.530( 0.000)	0.100
5	89.52( 0.14)	0.027	86.550( 0.050)	0.225
6	89.38( 0.00)	0.027	87.270( 0.000)	0.225
7	89.25( 0.14)	0.027		
8	90.45( 0.00)	0.075		
9	89.19( 0.00)	0.075		
10	89.78( 0.00)	0.030		
11	89.69( 0.00)	0.030		
12	90.28( 0.08)	0.030		
13	92.72( 0.00)	0.025		
14	90.00( 0.00)	0.025		
15	90.00( 0.00)	0.025		
16	90.45( 0.08)	0.025		
17	90.90( 0.00)	0.110		
18	90.90( 0.00)	0.110		
19	91.19( 0.00)	0.110		
20	90.37( 0.14)	0.110		

DRYWELL PRESSURE= 72.0980 ( -0.0040) PSIA  
AVG. CONT. TEMP= 90.297 ( 0.0357) DEG. F  
AVG. DEWPOINT PRESS= 0.616 ( 0.0008) PSIA

INTERVAL 3 LEAK RATE= 0.950 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.381 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

-----  
CONTAINMENT TOTAL MASS ( DRY AIR)= 85084.30 POUNDS  
PROJECTED LEAK RATE= 0.355 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 2.639 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 2.993 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

-----  
DATA SET NUMBER 3  
DATE: 8/ 26/ 83 2020  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 0.67

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.56( 0.00)	0.027	79.500( 0.000)	0.150
2	88.84( 0.00)	0.027	80.000( 0.100)	0.150
3	88.97( 0.00)	0.027	81.720( 0.170)	0.150
4	89.65( 0.00)	0.027	79.500( 0.000)	0.100
5	89.38(-0.14)	0.027	86.500(-0.200)	0.225
6	89.38(-0.14)	0.027	87.270(-0.080)	0.225
7	89.11(-0.14)	0.027		
8	90.45( 0.00)	0.075		
9	89.19( 0.00)	0.075		
10	89.78(-0.08)	0.030		
11	89.69( 0.00)	0.030		
12	90.20( 0.00)	0.030		
13	92.72( 0.00)	0.025		
14	90.03( 0.00)	0.025		
15	90.03( 0.00)	0.025		
16	90.37(-0.08)	0.025		
17	90.92( 0.00)	0.118		
18	90.92( 0.00)	0.118		
19	91.19(-0.14)	0.118		
20	90.23(-0.14)	0.118		

DRYWELL PRESSURE= 72.1020 ( -0.0080) PSIA  
AVG. CONT. TEMP= 90.261 ( -0.0487) DEG.F  
AVG. DEWPOINT PRESS= 0.615 ( -0.0005) PSIA

INTERVAL 2 LEAK RATE= 0.121 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.096 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

-----  
CONTAINMENT TOTAL MASS (DRY AIR)= 85095.54 POUNDS  
PROJECTED LEAK RATE NOT CALCULATED (<4 DATA SETS)

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LR)= 0.476 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

-----  
DATA SET NUMBER 5  
DATE: 8/ 26/ 83 2100  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 1.33

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.56(-0.00)	0.027	79.500(-0.030)	0.150
2	88.84(-0.13)	0.027	80.000(-0.150)	0.150
3	88.97(-0.00)	0.027	81.830(-0.000)	0.150
4	89.65(-0.14)	0.027	79.530(-0.000)	0.100
5	89.38(-0.14)	0.027	86.550(-0.000)	0.225
6	89.38(-0.00)	0.027	87.270(-0.000)	0.225
7	89.11(-0.14)	0.027		
8	90.45(-0.00)	0.075		
9	89.19(-0.00)	0.075		
10	89.78(-0.00)	0.030		
11	89.69(-0.00)	0.030		
12	90.20(-0.00)	0.030		
13	90.72(-0.00)	0.025		
14	90.03(-0.00)	0.025		
15	90.03(-0.00)	0.025		
16	90.37(-0.00)	0.025		
17	90.78(-0.14)	0.118		
18	90.78(-0.14)	0.118		
19	91.19(-0.00)	0.118		
20	90.23(-0.14)	0.118		

DRYWELL PRESSURE= 72.0930 (-0.0050) PSIA  
AVG. CONT. TEMP= 90.228 (-0.0687) DEG.F  
AVG. DEWPOINT PRESS= 0.616 (-0.0003) PSIA

INTERVAL 4 LEAK RATE= -0.423 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.180 WT%/24HRS

MASS FLOT CONTAINMENT LEAKAGE RATE ANALYSIS

-----  
CONTAINMENT TOTAL MASS (DRY AIR)= 85089.31 POUNDS  
PROJECTED LEAK RATE= 0.251 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.723 WT% 24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.974 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

DATA SET NUMBER 6  
DATE: 8/ 26/ 83 2120  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 1.67

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.56( 0.00)	0.027	79.500( 0.000)	0.150
2	88.97( 0.13)	0.027	80.220( 0.220)	0.150
3	88.97( 0.00)	0.027	81.700( -0.130)	0.150
4	89.65( 0.00)	0.027	79.700( 0.170)	0.100
5	89.38( 0.00)	0.027	86.550( 0.000)	0.225
6	89.38( 0.00)	0.027	87.270( 0.000)	0.225
7	89.11( 0.00)	0.027		
8	90.45( 0.00)	0.075		
9	89.19( 0.00)	0.075		
10	89.78( 0.00)	0.030		
11	89.69( 0.00)	0.030		
12	90.28( 0.08)	0.030		
13	92.72( 0.00)	0.025		
14	90.03( 0.00)	0.025		
15	90.03( 0.00)	0.025		
16	90.45( 0.00)	0.025		
17	90.78( 0.00)	0.118		
18	90.78( 0.00)	0.118		
19	91.19( 0.00)	0.118		
20	90.23( 0.00)	0.118		

DRYWELL PRESSURE= 72.0880 ( -0.0050) PSIA  
AVG. CONT. TEMP= 90.236 ( 0.0079) DEG.F  
AVG. DEWPOINT PRESS= 0.616 ( 0.0005) PSIA

INTERVAL 5 LEAK RATE= 0.657 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.275 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85081.54 POUNDS  
PROJECTED LEAK RATE= 0.279 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.437 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.716 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS



COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

-----  
DATA SET NUMBER 7  
DATE: 8/ 26/ 83 2140  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 2.00

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.56( 0.00)	0.027	79.530( 0.030)	0.150
2	88.84(-0.13)	0.027	80.220( 0.000)	0.150
3	88.97( 0.00)	0.027	81.700( 0.000)	0.150
4	89.65( 0.00)	0.027	79.530(-0.170)	0.100
5	89.38( 0.00)	0.027	86.550( 0.000)	0.225
6	89.52( 0.14)	0.027	87.270( 0.000)	0.225
7	89.25( 0.14)	0.027		
8	90.45( 0.00)	0.075		
9	89.19( 0.00)	0.075		
10	89.86( 0.00)	0.030		
11	89.69( 0.00)	0.030		
12	90.28( 0.00)	0.030		
13	92.80( 0.00)	0.025		
14	90.03( 0.00)	0.025		
15	90.03( 0.00)	0.025		
16	90.45( 0.00)	0.025		
17	90.78( 0.00)	0.118		
18	90.78( 0.00)	0.118		
19	91.19( 0.00)	0.118		
20	90.23( 0.00)	0.118		

DRYWELL PRESSURE= 72.0830 ( -0.0050) PSIA  
AVG. CONT. TEMP= 90.245 ( 0.0084) DEG.F  
AVG. DEWPOINT PRESS= 0.616 ( -0.0002) PSIA

INTERVAL 6 LEAK RATE= 0.596 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.329 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

-----  
CONTAINMENT TOTAL MASS (DRY AIR)= 85074.50 POUNDS  
PROJECTED LEAK RATE= 0.323 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.361 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.684 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS



COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

DATA SET NUMBER 8  
DATE: 8/ 26/ 83 2200  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 2.33

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.56( 0.00)	0.027	79.700( 0.170)	0.150
2	88.97( 0.13)	0.027	80.220( 0.000)	0.150
3	88.97( 0.00)	0.027	81.650(-0.050)	0.150
4	89.65( 0.00)	0.027	79.700( 0.170)	0.100
5	89.52( 0.14)	0.027	66.500(-0.050)	0.225
6	89.52( 0.00)	0.027	87.270( 0.000)	0.225
7	89.11(-0.14)	0.027		
8	90.45( 0.00)	0.075		
9	89.19( 0.00)	0.075		
10	89.78(-0.08)	0.030		
11	89.69( 0.00)	0.030		
12	90.20(-0.08)	0.030		
13	92.72(-0.08)	0.025		
14	90.03( 0.00)	0.025		
15	90.03( 0.00)	0.025		
16	90.45( 0.00)	0.025		
17	90.78( 0.00)	0.118		
18	90.78( 0.00)	0.118		
19	91.05(-0.14)	0.118		
20	90.23( 0.00)	0.118		

DRYWELL PRESSURE= 72.0760 ( -0.0070) PSIA  
AVG. CONT. TEMP= 90.225 ( -0.0198) DEG.F  
AVG. DEWPOINT PRESS= 0.616 ( 0.0002) PSIA

INTERVAL 7 LEAK RATE= 0.471 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.349 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85068.93 POUNDS  
PROJECTED LEAK RATE= 0.354 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.319 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.673 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

DATA SET NUMBER 9  
DATE: 8/ 26/ 83 2220  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 2.67

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.56( 0.00)	0.027	79.330(-0.370)	0.150
2	88.97( 0.00)	0.027	80.220( 0.000)	0.150
3	88.97( 0.00)	0.027	81.830( 0.180)	0.150
4	89.65( 0.00)	0.027	79.530(-0.170)	0.100
5	89.38(-0.14)	0.027	86.330(-0.170)	0.225
6	89.38(-0.14)	0.027	87.270( 0.000)	0.225
7	89.11( 0.00)	0.027		
8	90.45( 0.00)	0.075		
9	89.19( 0.00)	0.075		
10	89.78( 0.00)	0.030		
11	89.69( 0.00)	0.030		
12	90.28( 0.00)	0.030		
13	92.72( 0.00)	0.025		
14	90.03( 0.00)	0.025		
15	90.03( 0.00)	0.025		
16	90.45( 0.00)	0.025		
17	90.78( 0.00)	0.118		
18	90.78( 0.00)	0.118		
19	91.05( 0.00)	0.118		
20	90.23( 0.00)	0.118		

DRYWELL PRESSURE= 72.0740 ( -0.0020) PSIA  
AVG. CONT. TEMP= 90.220 ( -0.0052) DEG.F  
AVG. DEWPOINT PRESS= 0.615 ( -0.0013) PSIA

INTERVAL 8 LEAK RATE= 0.007 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.306 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85068.85 POUNDS  
PROJECTED LEAK RATE= 0.345 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.269 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.614 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

DATA SET NUMBER 10  
DATE: 8/ 26/ 83 2240  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 3.00

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.56( 0.00)	0.027	79.700( 0.370)	0.150
2	88.84(-0.13)	0.027	80.220( 0.000)	0.150
3	88.97( 0.00)	0.027	81.450(-0.380)	0.150
4	89.65( 0.00)	0.027	79.700( 0.170)	0.100
5	89.52( 0.14)	0.027	86.420( 0.090)	0.225
6	89.52( 0.14)	0.027	87.270( 0.000)	0.225
7	89.25( 0.14)	0.027		
8	90.45( 0.00)	0.075		
9	89.19( 0.00)	0.075		
10	89.86( 0.00)	0.030		
11	89.78( 0.09)	0.030		
12	90.28( 0.00)	0.030		
13	92.72( 0.00)	0.025		
14	90.03( 0.00)	0.025		
15	90.03( 0.00)	0.025		
16	90.45( 0.00)	0.025		
17	90.78( 0.00)	0.118		
18	90.78( 0.00)	0.118		
19	91.19( 0.14)	0.118		
20	90.23( 0.00)	0.118		

DRYWELL PRESSURE= 72.0700 ( -0.0040) PSIA  
AVG. CONT. TEMP= 90.249 ( 0.0294) DEG.F  
AVG. DEWPOINT PRESS= 0.615 ( 0.0003) PSIA

INTERVAL 9 LEAK RATE= 0.822 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.364 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85059.14 POUNDS  
PROJECTED LEAK RATE= 0.367 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.255 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.622 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

DATA SET NUMBER 11  
DATE: 8/ 26/ 83 2300  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 3.33

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.56( 0.00)	0.027	79.700( 0.000)	0.150
2	88.84( 0.00)	0.027	80.330( 0.110)	0.150
3	88.97( 0.00)	0.027	81.920( 0.470)	0.150
4	89.65( 0.00)	0.027	79.890( 0.190)	0.100
5	89.38(-0.14)	0.027	86.550( 0.130)	0.225
6	89.52( 0.00)	0.027	87.350( 0.080)	0.225
7	89.11(-0.14)	0.027		
8	90.45( 0.00)	0.075		
9	89.19( 0.00)	0.075		
10	89.78(-0.08)	0.030		
11	89.69(-0.09)	0.030		
12	90.28( 0.00)	0.030		
13	92.72( 0.00)	0.025		
14	90.03( 0.00)	0.025		
15	90.03( 0.00)	0.025		
16	90.45( 0.00)	0.025		
17	90.78( 0.00)	0.118		
18	90.78( 0.00)	0.118		
19	91.05(-0.14)	0.118		
20	90.23( 0.00)	0.118		

DRYWELL PRESSURE= 72.0640 ( -0.0060) PSIA  
AVG. CONT. TEMP= 90.220 ( -0.0292) DEG.F  
AVG. DEWPOINT PRESS= 0.618 ( 0.0028) PSIA

INTERVAL 10 LEAK RATE= 0.508 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.378 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85053.13 POUNDS  
PROJECTED LEAK RATE= 0.385 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.245 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.630 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

DATA SET NUMBER 12  
DATE: 8/ 26/ 83 2320  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 3.67

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.56( 0.00)	0.027	79.700( 0.000)	0.150
2	88.97( 0.13)	0.027	80.330( 0.000)	0.150
3	88.84(-0.13)	0.027	81.700(-0.220)	0.150
4	89.65( 0.00)	0.027	79.700(-0.190)	0.100
5	89.52( 0.14)	0.027	86.550( 0.000)	0.225
6	89.38(-0.14)	0.027	87.270(-0.080)	0.225
7	89.11( 0.00)	0.027		
8	90.37(-0.08)	0.075		
9	89.19( 0.00)	0.075		
10	89.86( 0.00)	0.030		
11	89.69( 0.00)	0.030		
12	90.28( 0.00)	0.030		
13	92.72( 0.00)	0.025		
14	90.03( 0.00)	0.025		
15	90.03( 0.00)	0.025		
16	90.45( 0.00)	0.025		
17	90.64(-0.14)	0.118		
18	90.78( 0.00)	0.118		
19	91.05( 0.00)	0.118		
20	90.23( 0.00)	0.118		

DRYWELL PRESSURE= 72.0640 ( 0.0000) PSIA  
AVG. CONT. TEMP= 90.200 ( -0.0201) DEG.F  
AVG. DEWPOINT PRESS= 0.617 ( -0.0012) PSIA

INTERVAL 11 LEAK RATE= -0.389 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.308 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85057.72 POUNDS  
PROJECTED LEAK RATE= 0.366 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.217 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.583 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS



COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

DATA SET NUMBER 13  
DATE: 8/26/83 2340  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 4.00

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.43(-0.13)	0.027	79.330(-0.370)	0.150
2	88.84(-0.13)	0.027	80.330( 0.000)	0.150
3	88.84( 0.00)	0.027	81.830( 0.130)	0.150
4	89.65( 0.00)	0.027	79.700( 0.000)	0.100
5	89.25(-0.27)	0.027	86.550( 0.000)	0.225
6	89.38( 0.00)	0.027	87.180(-0.090)	0.225
7	89.11( 0.00)	0.027		
8	90.37( 0.00)	0.075		
9	89.11(-0.08)	0.075		
10	89.78(-0.08)	0.030		
11	89.61(-0.08)	0.030		
12	90.20(-0.08)	0.030		
13	92.63(-0.09)	0.025		
14	89.95(-0.08)	0.025		
15	89.95(-0.08)	0.025		
16	90.37(-0.08)	0.025		
17	90.64( 0.00)	0.118		
18	90.78( 0.00)	0.118		
19	91.05( 0.00)	0.118		
20	90.06(-0.17)	0.118		

DRYWELL PRESSURE= 72.0560 ( -0.0080) PSIA  
AVG. CONT. TEMP= 90.144 ( -0.0558) DEG.F  
AVG. DEWPOINT PRESS= 0.616 ( -0.0008) PSIA

INTERVAL 12 LEAK RATE= -0.006 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.282 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85057.80 POUNDS  
PROJECTED LEAK RATE= 0.342 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.192 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.534 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

DATA SET NUMBER 14  
DATE: 8/ 26/ 83 2400  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 4.33

SENSOR #	TEMP( DEG.F )	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	89.43( 0.00)	0.027	79.700( 0.370)	0.150
2	89.84( 0.00)	0.027	80.220(-0.110)	0.150
3	88.84( 0.00)	0.027	81.830( 0.000)	0.150
4	89.52(-0.13)	0.027	79.700( 0.000)	0.100
5	89.25( 0.00)	0.027	86.420(-0.130)	0.225
6	89.38( 0.00)	0.027	87.270( 0.090)	0.225
7	89.11( 0.00)	0.027		
8	90.28(-0.09)	0.075		
9	89.11( 0.00)	0.075		
10	89.78( 0.00)	0.030		
11	89.61( 0.00)	0.030		
12	90.20( 0.00)	0.030		
13	92.63( 0.00)	0.025		
14	89.86(-0.09)	0.025		
15	89.86(-0.09)	0.025		
16	90.37( 0.00)	0.025		
17	90.64( 0.00)	0.118		
18	90.64(-0.14)	0.118		
19	90.92(-0.13)	0.118		
20	90.06( 0.00)	0.118		

DRYWELL PRESSURE= 72.0510 ( -0.0050) PSIA  
AVG. CONT. TEMP= 90.098 ( -0.0466) DEG.F  
AVG. DEWPOINT PRESS= 0.617 ( 0.0003) PSIA

INTERVAL 13 LEAK RATE= -0.075 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.255 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85058.69 POUNDS  
PROJECTED LEAK RATE= 0.315 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.170 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.485 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75+LA)= 0.476 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

-----  
DATA SET NUMBER 15  
DATE: 8/ 27/ 83 2420  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 4.67

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.43( 0.00)	0.027	79.600(-0.100)	0.150
2	88.84( 0.00)	0.027	80.000(-0.220)	0.150
3	88.84( 0.00)	0.027	81.900( 0.070)	0.150
4	89.52( 0.00)	0.027	79.700( 0.000)	0.100
5	89.25( 0.00)	0.027	86.200(-0.220)	0.225
6	89.52( 0.14)	0.027	87.300( 0.030)	0.225
7	89.11( 0.00)	0.027		
8	90.28( 0.00)	0.075		
9	89.11( 0.00)	0.075		
10	89.69(-0.09)	0.030		
11	89.61( 0.00)	0.030		
12	90.20( 0.00)	0.030		
13	92.55(-0.08)	0.025		
14	89.86( 0.00)	0.025		
15	89.86( 0.00)	0.025		
16	90.28(-0.09)	0.025		
17	90.64( 0.00)	0.118		
18	90.64( 0.00)	0.118		
19	90.92( 0.00)	0.118		
20	90.06( 0.00)	0.118		

DRYWELL PRESSURE= 72.0460 ( -0.0050) PSIA  
AVG. CONT. TEMP= 90.094 ( -0.0032) DEG.F  
AVG. DEWPOINT PRESS= 0.615 ( -0.0015) PSIA

INTERVAL 14 LEAK RATE= 0.315 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.259 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

-----  
CONTAINMENT TOTAL MASS (DRY AIR)= 85054.97 POUNDS  
PROJECTED LEAK RATE= 0.297 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.153 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.451 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS



COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

DATA SET NUMBER 16  
DATE: 8/ 27/ 83 0040  
LAST INTERVAL: HOURS 0.33 HOURS FROM T=0 5.00

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.43( 0.00)	0.027	79.700( 0.100)	0.150
2	88.70(-0.14)	0.027	80.330( 0.330)	0.150
3	88.84( 0.00)	0.027	81.830(-0.070)	0.150
4	89.52( 0.00)	0.027	79.800( 0.100)	0.100
5	89.25( 0.00)	0.027	86.550( 0.350)	0.225
6	89.25(-0.27)	0.027	87.180(-0.120)	0.225
7	89.11( 0.00)	0.027		
8	90.28( 0.00)	0.075		
9	89.11( 0.00)	0.075		
10	89.69( 0.00)	0.030		
11	89.61( 0.00)	0.030		
12	90.20( 0.00)	0.030		
13	92.55( 0.00)	0.025		
14	89.86( 0.00)	0.025		
15	89.86( 0.00)	0.025		
16	90.28( 0.00)	0.025		
17	90.64( 0.00)	0.118		
18	90.64( 0.00)	0.118		
19	90.92( 0.00)	0.118		
20	90.06( 0.00)	0.118		

DRYWELL PRESSURE= 72.0440 ( -0.0020) PSIA  
AVG. CONT. TEMP= 90.083 ( -0.0111) DEG.F  
AVG. DEWPOINT PRESS= 0.617 ( 0.0021) PSIA

INTERVAL 15 LEAK RATE= 0.268 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.259 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85051.81 POUNDS  
PROJECTED LEAK RATE= 0.285 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.141 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.425 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

DATA SET NUMBER 17  
DATE: 8/ 27/ 83 0100  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 5.33

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.43( 0.00)	0.027	79.700( 0.000)	0.150
2	88.70( 0.00)	0.027	79.970(-0.360)	0.150
3	88.70(-0.14)	0.027	82.030( 0.200)	0.150
4	89.52( 0.00)	0.027	79.890( 0.090)	0.100
5	89.25( 0.00)	0.027	86.550( 0.000)	0.225
6	89.65( 0.40)	0.027	87.300( 0.120)	0.225
7	88.97(-0.14)	0.027		
8	90.28( 0.00)	0.075		
9	89.02(-0.09)	0.075		
10	89.69( 0.00)	0.030		
11	89.61( 0.00)	0.030		
12	90.20( 0.00)	0.030		
13	92.55( 0.00)	0.025		
14	89.86( 0.00)	0.025		
15	89.86( 0.00)	0.025		
16	90.28( 0.00)	0.025		
17	90.64( 0.00)	0.118		
18	90.64( 0.00)	0.118		
19	90.92( 0.00)	0.118		
20	90.06( 0.00)	0.118		

DRYWELL PRESSURE= 72.0400 ( -0.0040) PSIA  
AVG. CONT. TEMP= 90.000 ( -0.0035) DEG.F  
AVG. DEWPOINT PRESS= 0.617 ( 0.0002) PSIA

INTERVAL 16 LEAK RATE= 0.378 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.267 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85047.34 POUNDS  
PROJECTED LEAK RATE= 0.278 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.131 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.410 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

DATA SET NUMBER 18  
DATE: 8/ 27/ 83 0120  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 5.67

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.43( 0.00)	0.027	79.800( 0.100)	0.150
2	88.70( 0.00)	0.027	80.330( 0.360)	0.150
3	88.84( 0.14)	0.027	81.830( -0.200)	0.150
4	89.52( 0.00)	0.027	79.890( 0.000)	0.100
5	89.25( 0.00)	0.027	86.330( -0.220)	0.225
6	89.25( -0.40)	0.027	87.300( 0.000)	0.225
7	88.97( 0.00)	0.027		
8	90.28( 0.00)	0.075		
9	89.02( 0.00)	0.075		
10	89.69( 0.00)	0.030		
11	89.61( 0.00)	0.030		
12	90.20( 0.00)	0.030		
13	92.55( 0.00)	0.025		
14	89.86( 0.00)	0.025		
15	89.86( 0.00)	0.025		
16	90.28( 0.00)	0.025		
17	90.64( 0.00)	0.118		
18	90.64( 0.00)	0.118		
19	90.92( 0.00)	0.118		
20	89.93( -0.13)	0.118		

DRYWELL PRESSURE= 72.0340 ( -0.0060) PSIA  
AVG. CONT. TEMP= 90.057 ( -0.0223) DEG.F  
AVG. DEWPOINT PRESS= 0.617 ( -0.0003) PSIA

INTERVAL 17 LEAK RATE= 0.282 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.266 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS ( DRY AIR )= 85044.01 POUNDS

PROJECTED LEAK RATE= 0.274 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.124 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.398 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE( 0.75\*LA )= 0.476 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

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DATA SET NUMBER 19  
DATE: 8/ 27/ 83 0140  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 6.00

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.29(-0.14)	0.027	79.700(-0.100)	0.150
2	88.70( 0.00)	0.027	80.220(-0.110)	0.150
3	88.70(-0.14)	0.027	81.920( 0.090)	0.150
4	89.52( 0.00)	0.027	79.800(-0.090)	0.100
5	89.25( 0.00)	0.027	86.500( 0.170)	0.225
6	89.25( 0.00)	0.027	87.200(-0.100)	0.225
7	88.97( 0.00)	0.027		
8	90.20(-0.08)	0.075		
9	89.02( 0.00)	0.075		
10	89.61(-0.08)	0.030		
11	89.53(-0.08)	0.030		
12	90.12(-0.08)	0.030		
13	92.55( 0.00)	0.025		
14	89.78(-0.08)	0.025		
15	89.86( 0.00)	0.025		
16	90.20(-0.08)	0.025		
17	90.64( 0.00)	0.118		
18	90.64( 0.00)	0.118		
19	90.92( 0.00)	0.118		
20	90.06( 0.13)	0.118		

DRYWELL PRESSURE= 72.0290 ( -0.0050) PSIA  
AVG. CONT. TEMP= 90.048 ( -0.0094) DEG.F  
AVG. DEWPOINT PRESS= 0.617 ( -0.0001) PSIA

INTERVAL 18 LEAK RATE= 0.370 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.273 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

-----  
CONTAINMENT TOTAL MASS (DRY AIR)= 85039.63 POUNDS  
PROJECTED LEAK RATE= 0.272 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.118 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.390 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT---ABSOLUTE METHOD

DATA SET NUMBER 20  
DATE: 8/ 27/ 83 0200  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 6.33

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.29( 0.00)	0.027	79.800( 0.100)	0.150
2	88.70( 0.00)	0.027	80.150(-0.070)	0.150
3	88.70( 0.00)	0.027	82.030( 0.110)	0.150
4	89.38(-0.14)	0.027	79.700(-0.100)	0.100
5	89.25( 0.00)	0.027	86.330(-0.170)	0.225
6	89.11(-0.14)	0.027	87.180(-0.020)	0.225
7	88.84(-0.13)	0.027		
8	90.20( 0.00)	0.075		
9	88.94(-0.08)	0.075		
10	89.61( 0.00)	0.030		
11	89.44(-0.09)	0.030		
12	90.12( 0.00)	0.030		
13	92.55( 0.00)	0.025		
14	89.78( 0.00)	0.025		
15	89.78(-0.08)	0.025		
16	90.20( 0.00)	0.025		
17	90.64( 0.00)	0.118		
18	90.64( 0.00)	0.118		
19	90.92( 0.00)	0.118		
20	90.06( 0.00)	0.118		

DRYWELL PRESSURE= 72.0210 ( -0.0080) PSIA  
AVG. CONT. TEMP= 90.026 ( -0.0217) DEG.F  
AVG. DEWPOINT PRESS= 0.616 ( -0.0006) PSIA

INTERVAL 19 LEAK RATE= 0.458 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.283 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85034.23 POUNDS  
PROJECTED LEAK RATE= 0.273 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.115 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.388 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS

COOPER:  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

-----  
DATA SET NUMBER 21  
DATE: 8/ 27/ 83 0220  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 6.67

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.29( 0.00)	0.027	79.800( 0.000)	0.150
2	88.56(-0.14)	0.027	80.150( 0.000)	0.150
3	88.56(-0.14)	0.027	81.850(-0.180)	0.150
4	89.38( 0.00)	0.027	79.900( 0.200)	0.100
5	89.11(-0.14)	0.027	86.500( 0.170)	0.225
6	89.11( 0.00)	0.027	87.180( 0.000)	0.225
7	88.97( 0.13)	0.027		
8	90.20( 0.00)	0.075		
9	88.94( 0.00)	0.075		
10	89.61( 0.00)	0.030		
11	89.53( 0.09)	0.030		
12	90.12( 0.00)	0.030		
13	92.46(-0.09)	0.025		
14	89.78( 0.00)	0.025		
15	89.78( 0.00)	0.025		
16	90.20( 0.00)	0.025		
17	90.51(-0.13)	0.118		
18	90.64( 0.00)	0.118		
19	90.92( 0.00)	0.118		
20	89.93(-0.13)	0.118		

DRYWELL PRESSURE= 72.0170 ( -0.0040) PSIA  
AVG. CONT. TEMP= 89.988 ( -0.0380) DEG.F  
AVG. DEWPOINT PRESS= 0.617 ( 0.0005) PSIA

INTERVAL 20 LEAK RATE= -0.044 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.267 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

-----  
CONTAINMENT TOTAL MASS (DRY AIR)= 85034.75 POUNDS  
PROJECTED LEAK RATE= 0.270 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.110 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.380 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS



COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

DATA SET NUMBER 22  
DATE: 8/ 27/ 83 0240  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 7.00

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.29( 0.00)	0.027	79.800( 0.000)	0.150
2	88.56( 0.00)	0.027	80.220( 0.070)	0.150
3	88.56( 0.00)	0.027	81.920( 0.070)	0.150
4	89.38( 0.00)	0.027	79.900( 0.000)	0.100
5	89.11( 0.00)	0.027	86.420(-0.080)	0.225
6	89.11( 0.00)	0.027	87.300( 0.120)	0.225
7	88.84(-0.13)	0.027		
8	90.12(-0.08)	0.075		
9	86.94( 0.00)	0.075		
10	89.53(-0.08)	0.030		
11	89.44(-0.09)	0.030		
12	90.12( 0.00)	0.030		
13	92.46( 0.00)	0.025		
14	89.69(-0.09)	0.025		
15	89.69(-0.09)	0.025		
16	90.20( 0.00)	0.025		
17	90.51( 0.00)	0.118		
18	90.64( 0.00)	0.118		
19	90.92( 0.00)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE= 72.0170 ( 0.0000) PSIA  
AVG. CONT. TEMP= 89.969 ( -0.0191) DEG.F  
AVG. DEWPOINT PRESS= 0.617 ( 0.0006) PSIA

INTERVAL 21 LEAK RATE= -0.192 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.245 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85037.02 POUNDS  
PROJECTED LEAK RATE= 0.262 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.104 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.366 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

DATA SET NUMBER 23  
DATE: 8/ 27/ 83 0300  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 7.33

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.15(-0.14)	0.027	79.800( 0.000)	0.150
2	88.56( 0.00)	0.027	80.220( 0.000)	0.150
3	88.70( 0.14)	0.027	81.850(-0.070)	0.150
4	89.38( 0.00)	0.027	79.700(-0.200)	0.100
5	89.11( 0.00)	0.027	86.500( 0.000)	0.225
6	89.11( 0.00)	0.027	87.180(-0.120)	0.225
7	88.84( 0.00)	0.027		
8	90.12( 0.00)	0.075		
9	88.85(-0.09)	0.075		
10	89.53( 0.00)	0.030		
11	89.44( 0.00)	0.030		
12	90.12( 0.00)	0.030		
13	92.46( 0.00)	0.025		
14	89.69( 0.00)	0.025		
15	89.69( 0.00)	0.025		
16	90.20( 0.00)	0.025		
17	90.64( 0.13)	0.118		
18	90.64( 0.00)	0.118		
19	90.92( 0.00)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE= 72.0080 ( -0.0090) PSIA  
AVG. CONT. TEMP= 88.978 ( 0.0086) DEG.F  
AVG. DEWPOINT PRESS= 0.617 ( -0.0007) PSIA

INTERVAL 22 LEAK RATE= 0.953 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.277 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85025.77 POUNDS  
PROJECTED LEAK RATE= 0.264 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.101 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.365 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LR)= 0.476 WT%/24HRS



COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

DATA SET NUMBER 24  
DATE: 8/ 27/ 83 0320  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 7.67

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.15( 0.00)	0.027	79.900( 0.100)	0.150
2	88.56( 0.00)	0.027	80.220( 0.000)	0.150
3	88.56(-0.14)	0.027	81.850( 0.000)	0.150
4	89.25(-0.13)	0.027	79.800( 0.100)	0.100
5	89.11( 0.00)	0.027	86.500( 0.000)	0.225
6	89.11( 0.00)	0.027	87.180( 0.000)	0.225
7	88.84( 0.00)	0.027		
8	90.12( 0.00)	0.075		
9	88.85( 0.00)	0.075		
10	89.53( 0.00)	0.030		
11	89.44( 0.00)	0.030		
12	90.03(-0.09)	0.030		
13	92.38(-0.08)	0.025		
14	89.61(-0.08)	0.025		
15	89.69( 0.00)	0.025		
16	90.12(-0.08)	0.025		
17	90.51(-0.13)	0.118		
18	90.51(-0.13)	0.118		
19	90.78(-0.14)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE= 72.0010 ( -0.0070) PSIA  
AVG. CONT. TEMP= 89.915 ( -0.0631) DEG.F  
AVG. DEWPOINT PRESS= 0.617 ( 0.0004) PSIA

INTERVAL 23 LEAK RATE= -0.085 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.261 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85026.78 POUNDS  
PROJECTED LEAK RATE= 0.261 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.098 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.359 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

DATA SET NUMBER 25  
DATE: 8/ 27/ 83 0340  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 8.00

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.15( 0.00)	0.027	79.800(-0.100)	0.150
2	88.43(-0.13)	0.027	80.220( 0.000)	0.150
3	88.43(-0.13)	0.027	81.920( 0.070)	0.150
4	89.25( 0.00)	0.027	79.800( 0.000)	0.100
5	89.11( 0.00)	0.027	86.420(-0.080)	0.225
6	88.97(-0.14)	0.027	87.180( 0.000)	0.225
7	88.70(-0.14)	0.027		
8	90.03(-0.09)	0.075		
9	88.85( 0.00)	0.075		
10	89.44(-0.09)	0.030		
11	89.44( 0.00)	0.030		
12	90.03( 0.00)	0.030		
13	92.38( 0.00)	0.025		
14	89.61( 0.00)	0.025		
15	89.61(-0.08)	0.025		
16	90.12( 0.00)	0.025		
17	90.51( 0.00)	0.118		
18	90.51( 0.00)	0.118		
19	90.78( 0.00)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE= 71.9960 ( -0.0050) PSIA  
AVG. CONT. TEMP= 89.889 ( -0.0260) DEG.F  
AVG. DEWPOINT PRESS= 0.617 ( -0.0004) PSIA

INTERVAL 24 LEAK RATE= 0.127 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.256 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85025.28 POUNDS  
PROJECTED LEAK RATE= 0.258 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.094 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.353 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS

INTERVAL DATA SETS - REFERENCE CHAMBER METHOD

COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 1

DATE: 8/ 26/ 83 1940

LAST INTERVAL, HOURS 0.00 HOURS FROM T=0 0.00

SENSOR #	TEMP( DEG. F)	WT. FACTOR	DEWPOINT (DEG. F)	WT. FACTOR
1	88.56( 0.00)	0.027	79.420( 0.000)	0.150
2	88.84( 0.00)	0.027	80.220( 0.000)	0.150
3	88.97( 0.00)	0.027	81.550( 0.000)	0.150
4	89.65( 0.00)	0.027	79.500( 0.000)	0.100
5	89.38( 0.00)	0.027	86.500( 0.000)	0.225
6	89.38( 0.00)	0.027	87.350( 0.000)	0.225
7	89.11( 0.00)	0.027		
8	90.07( 0.00)	0.075		
9	89.19( 0.00)	0.075		
10	89.86( 0.00)	0.030		
11	89.69( 0.00)	0.030		
12	90.20( 0.00)	0.030		
13	92.72( 0.00)	0.025		
14	90.03( 0.00)	0.025		
15	90.03( 0.00)	0.025		
16	90.37( 0.00)	0.025		
17	90.92( 0.00)	0.118		
18	91.05( 0.00)	0.118		
19	91.33( 0.00)	0.118		
20	90.37( 0.00)	0.118		

DRYWELL PRESSURE=

72.1100 ( 0.0000) PSIA

REFS VESSEL DP=

0.9614 ( 0.0000) PSID

AVG. CONT. TEMP=

90.306 ( 0.0000) DEG. F

AVG. DEWPOINT PRESS=

0.616 ( 0.0000) PSIA

CONTAINMENT TOTAL MASS (DRY AIR)=

85097.81 POUNDS

NO LEAKAGE RATE VALUE CALCULATED FOR DATA SET #1

COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 2  
DATE: 8/ 26/ 83 2000  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 0.33

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.56( 0.00)	0.027	73.500( 0.000)	0.150
2	88.84( 0.00)	0.027	73.900(-0.320)	0.150
3	88.97( 0.00)	0.027	81.550( 0.000)	0.150
4	89.65( 0.00)	0.027	79.500( 0.000)	0.100
5	89.52( 0.14)	0.027	86.700( 0.200)	0.225
6	89.52( 0.14)	0.027	87.350( 0.000)	0.225
7	89.25( 0.14)	0.027		
8	90.45( 0.00)	0.075		
9	89.19( 0.00)	0.075		
10	89.86( 0.00)	0.030		
11	89.69( 0.00)	0.030		
12	90.20( 0.00)	0.030		
13	92.72( 0.00)	0.025		
14	90.03( 0.00)	0.025		
15	90.03( 0.00)	0.025		
16	90.45( 0.00)	0.025		
17	90.92( 0.00)	0.118		
18	90.92(-0.13)	0.118		
19	91.33( 0.00)	0.118		
20	90.37( 0.00)	0.118		

DRYWELL PRESSURE= 72.1100 ( 0.0000) PSIA  
REF. VESSEL DP= 0.9614 ( 0.0000) PSID  
AVG. CONT. TEMP= 90.310 ( 0.0040) DEG.F  
AVG. DEWPOINT PRESS= 0.616 ( 0.0002) PSIA

INTERVAL 1 LEAK RATE= 0.018 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.018 WT%/24HRS

MASS FLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85097.60 POUNDS  
PROJECTED LEAK RATE NOT CALCULATED (<4 DATA SETS)

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 3  
DATE: 8/ 26/ 83 2020  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 0.67

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.56( 0.00)	0.027	79.500( 0.000)	0.150
2	88.84( 0.00)	0.027	80.000( 0.100)	0.150
3	88.97( 0.00)	0.027	81.720( 0.170)	0.150
4	89.65( 0.00)	0.027	79.530( 0.030)	0.100
5	89.38(-0.14)	0.027	86.500(-0.200)	0.225
6	89.38(-0.14)	0.027	87.270(-0.000)	0.225
7	89.11(-0.14)	0.027		
8	90.45( 0.00)	0.075		
9	89.19( 0.00)	0.075		
10	89.78(-0.08)	0.030		
11	89.69( 0.00)	0.030		
12	90.20( 0.00)	0.030		
13	92.72( 0.00)	0.025		
14	90.03( 0.00)	0.025		
15	90.03( 0.00)	0.025		
16	90.37(-0.08)	0.025		
17	90.92( 0.00)	0.118		
18	90.92( 0.00)	0.118		
19	91.19(-0.14)	0.118		
20	90.23(-0.14)	0.118		

DRYWELL PRESSURE= 72.1020 ( -0.0080) PSIA  
REF. VESSEL DP= 0.9630 ( 0.0016) PSID  
AVG. CONT. TEMP= 90.261 ( -0.0487) DEG.F  
AVG. DEWPOINT PRESS= 0.615 ( -0.0005) PSIA

INTERVAL 2 LEAK RATE= 0.128 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.073 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85096.08 POUNDS  
PROJECTED LEAK RATE NOT CALCULATED (<4 DATA SETS)

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS

COOPERI  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 4  
DATE: 8/ 26/ 83 2040  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 1.00

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.56( 0.00)	0.027	79.530( 0.000)	0.150
2	88.97( 0.13)	0.027	80.150( 0.150)	0.150
3	88.97( 0.00)	0.027	81.750( 0.000)	0.150
4	89.79( 0.14)	0.027	79.530( 0.000)	0.100
5	89.52( 0.14)	0.027	86.550( 0.050)	0.225
6	89.38( 0.00)	0.027	87.370( 0.000)	0.225
7	89.25( 0.14)	0.027		
8	90.45( 0.30)	0.075		
9	89.19( 0.00)	0.075		
10	89.76( 0.00)	0.030		
11	89.69( 0.00)	0.030		
12	90.28( 0.08)	0.030		
13	92.72( 0.00)	0.025		
14	90.03( 0.00)	0.025		
15	90.03( 0.00)	0.025		
16	90.45( 0.08)	0.025		
17	90.92( 0.00)	0.118		
18	90.92( 0.00)	0.118		
19	91.19( 0.00)	0.118		
20	90.37( 0.14)	0.118		

DRYWELL PRESSURE= 72.0900 ( -0.0040) PSIA  
REF. VESSEL DP= 0.9678 ( 0.0040) PSID  
AVG. CONT. TEMP= 90.297 ( 0.0357) DEG.F  
AVG. DEWPOINT PRESS= 0.616 ( 0.0008) PSIA

INTERVAL 3 LEAK RATE= 0.553 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.713 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 65089.55 POUNDS  
PROJECTED LEAK RATE= 0.223 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 1.626 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 1.849 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75+LR)= 0.476 WT%/24HRS



COOPER1

## PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER

5

DATE: 8/ 26/ 83

2100

LAST INTERVAL, HOURS

0.33

HOURS FROM T=0

1.33

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.56( 0.00)	0.027	79.500(-0.030)	0.150
2	88.84(-0.13)	0.027	80.000(-0.150)	0.150
3	88.97( 0.00)	0.027	81.800( 0.000)	0.150
4	89.65(-0.14)	0.027	79.500( 0.000)	0.100
5	89.38(-0.14)	0.027	86.550( 0.000)	0.225
6	89.38( 0.00)	0.027	87.270( 0.000)	0.225
7	89.11(-0.14)	0.027		
8	90.45( 0.00)	0.075		
9	89.19( 0.00)	0.075		
10	89.70( 0.00)	0.030		
11	89.69( 0.00)	0.030		
12	90.20(-0.08)	0.030		
13	92.72( 0.00)	0.025		
14	90.03( 0.00)	0.025		
15	90.03( 0.00)	0.025		
16	90.37(-0.08)	0.025		
17	90.78(-0.14)	0.110		
18	90.78(-0.14)	0.110		
19	91.19( 0.00)	0.110		
20	90.23(-0.14)	0.110		

DRYWELL PRESSURE=

REF. VESSEL DP=

72.0900

( -0.0050) PSIA

0.9691

( 0.0013) PSID

AVG. CONT. TEMP=

AVG. DEWPOINT PRESS=

90.338

( -0.0687) DEG.F

0.616

( -0.0003) PSIA

INTERVAL 4 LEAK RATE=

TOTAL TIME LEAK RATE=

0.124

WT%/24HRS

0.206

WT%/24HRS

## MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)=

85089.08

POUNDS

PROJECTED LEAK RATE=

0.233

WT%/24HRS

95% CONFIDENCE INTERVAL=

+/- 0.500

WT%/24HRS

95% UPPER CONFIDENCE LEAK RATE=

0.313

WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75+LA)=

0.476

WT%/24HRS



COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 6  
DATE: 8/ 26/ 83 2120  
LAST INTERVAL, HOURS 0.33 . HOURS FROM T=0 1.67

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DENPOINT (DEG.F)	WT.FACTOR
1	88.56( 0.00)	0.027	79.500( 0.000)	0.150
2	88.97( 0.13)	0.027	80.220( 0.220)	0.150
3	88.97( 0.00)	0.027	81.700( -0.130)	0.150
4	89.65( 0.00)	0.027	79.700( 0.170)	0.100
5	89.38( 0.00)	0.027	86.550( 0.000)	0.225
6	89.38( 0.00)	0.027	87.270( 0.000)	0.225
7	89.11( 0.00)	0.027		
8	90.45( 0.00)	0.075		
9	89.19( 0.00)	0.075		
10	89.78( 0.00)	0.030		
11	89.69( 0.00)	0.030		
12	90.28( 0.08)	0.030		
13	92.72( 0.00)	0.025		
14	90.03( 0.00)	0.025		
15	90.03( 0.00)	0.025		
16	90.45( 0.08)	0.025		
17	90.78( 0.00)	0.118		
18	90.78( 0.00)	0.118		
19	91.19( 0.00)	0.118		
20	90.23( 0.00)	0.118		

DRYWELL PRESSURE= 72.0880 ( -0.0050) PSIA  
REF. VESSEL DP= 0.9696 ( 0.0005) PSID  
AVG. CONT. TEMP= 90.236 ( 0.0079) DEG.F  
AVG. DENPOINT PRESS= 0.616 ( 0.0005) PSIA

INTERVAL 5 LEAK RATE= 0.098 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.184 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85086.92 POUNDS  
PROJECTED LEAK RATE= 0.216 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.317 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.533 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

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DATA SET NUMBER 7  
DATE: 8/ 26/ 83 2140  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 2.00

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.56( 0.00)	0.027	79.530( 0.000)	0.150
2	88.84(-0.13)	0.027	80.220( 0.000)	0.150
3	88.97( 0.00)	0.027	81.700( 0.000)	0.150
4	89.65( 0.00)	0.027	79.530(-0.170)	0.100
5	89.38( 0.00)	0.027	86.550( 0.000)	0.225
6	89.52( 0.14)	0.027	87.270( 0.000)	0.225
7	89.25( 0.14)	0.027		
8	90.45( 0.00)	0.075		
9	89.19( 0.00)	0.075		
10	89.86( 0.08)	0.030		
11	89.69( 0.00)	0.030		
12	90.28( 0.00)	0.030		
13	92.80( 0.08)	0.025		
14	90.03( 0.00)	0.025		
15	90.03( 0.00)	0.025		
16	90.45( 0.00)	0.025		
17	90.78( 0.00)	0.118		
18	90.78( 0.00)	0.118		
19	91.19( 0.00)	0.118		
20	90.23( 0.00)	0.118		

DRYWELL PRESSURE= 72.0830 ( -0.0050) PSIA  
REF. VESSEL DP= 0.9705 ( 0.0009) PSID  
AVG. CONT. TEMP= 90.245 ( 0.0084) DEG.F  
AVG. DEWPOINT PRESS= 0.616 ( -0.0002) PSIA

INTERVAL 6 LEAK RATE= 0.070 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.165 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

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CONTAINMENT TOTAL MASS (DRY AIR)= 85086.10 POUNDS  
PROJECTED LEAK RATE= 0.195 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.212 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.407 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 8  
DATE: 8/ 26/ 83 2200  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 2.33

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.56( 0.00)	0.027	79.700( 0.170)	0.150
2	88.97( 0.13)	0.027	80.220( 0.000)	0.150
3	88.97( 0.00)	0.027	81.650( -0.050)	0.150
4	89.65( 0.00)	0.027	79.700( 0.170)	0.100
5	89.52( 0.14)	0.027	86.500( -0.050)	0.225
6	89.52( 0.00)	0.027	87.270( 0.000)	0.225
7	89.11( -0.14)	0.027		
8	90.45( 0.00)	0.075		
9	89.19( 0.00)	0.075		
10	89.78( -0.08)	0.030		
11	89.69( 0.00)	0.030		
12	90.20( -0.08)	0.030		
13	92.72( -0.08)	0.025		
14	90.03( 0.00)	0.025		
15	90.03( 0.00)	0.025		
16	90.45( 0.00)	0.025		
17	90.78( 0.00)	0.118		
18	90.78( 0.00)	0.118		
19	91.05( -0.14)	0.118		
20	90.23( 0.00)	0.118		

DRYWELL PRESSURE=	72.0760	( -0.0070)	PSIA
REF. VESSEL DP=	0.9765	( 0.0060)	PSID
AVG. CONT. TEMP=	90.225	( -0.0198)	DEG.F
AVG. DEWPOINT PRESS=	0.616	( 0.0002)	PSIA

INTERVAL 7 LEAK RATE=	0.635	WT%/24HRS
TOTAL TIME LEAK RATE=	0.232	WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)=	85078.59	POUNDS
PROJECTED LEAK RATE=	0.223	WT%/24HRS
95% CONFIDENCE INTERVAL=	+/- 0.199	WT%/24HRS
95% UPPER CONFIDENCE LEAK RATE=	0.422	WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75*LR)=	0.476	WT%/24HRS
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COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 9  
DATE: 8/ 26/ 83 2220  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 2.67

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.56( 0.00)	0.027	79.330(-0.370)	0.150
2	88.97( 0.00)	0.027	80.220( 0.000)	0.150
3	88.97( 0.00)	0.027	81.830( 0.180)	0.150
4	89.65( 0.00)	0.027	79.530(-0.170)	0.100
5	89.38(-0.14)	0.027	86.330(-0.170)	0.225
6	89.36(-0.14)	0.027	87.270( 0.000)	0.225
7	89.11( 0.00)	0.027		
8	90.45( 0.00)	0.075		
9	89.19( 0.00)	0.075		
10	89.78( 0.00)	0.030		
11	89.69( 0.00)	0.030		
12	90.28( 0.08)	0.030		
13	92.72( 0.00)	0.025		
14	90.03( 0.00)	0.025		
15	90.03( 0.00)	0.025		
16	90.45( 0.00)	0.025		
17	90.78( 0.00)	0.118		
18	90.78( 0.00)	0.118		
19	91.05( 0.00)	0.118		
20	90.23( 0.00)	0.118		

DRYWELL PRESSURE= 72.0740 ( -0.0020) PSIA  
REF. VESSEL DP= 0.9750 ( -0.0015) PSID  
AVG. CONT. TEMP= 90.220 ( -0.0052) DEG.F  
AVG. DEWPOINT PRESS= 0.615 ( -0.0013) PSIA

INTERVAL 8 LEAK RATE= -0.277 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.169 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85081.96 POUNDS  
PROJECTED LEAK RATE= 0.202 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.159 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.361 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS

COOPER1

PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 10

DATE: 8/ 26/ 83 2240

LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 3.00

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.56( 0.00)	0.027	79.700( 0.370)	0.150
2	88.84(-0.13)	0.027	80.220( 0.000)	0.150
3	88.97( 0.00)	0.027	81.450(-0.380)	0.150
4	89.65( 0.00)	0.027	79.700( 0.170)	0.100
5	89.52( 0.14)	0.027	86.420( 0.090)	0.225
6	89.52( 0.14)	0.027	87.270( 0.000)	0.225
7	89.25( 0.14)	0.027		
8	90.45( 0.00)	0.075		
9	89.19( 0.00)	0.075		
10	89.86( 0.00)	0.030		
11	89.78( 0.09)	0.030		
12	90.28( 0.00)	0.030		
13	92.72( 0.00)	0.025		
14	90.03( 0.00)	0.025		
15	90.03( 0.00)	0.025		
16	90.45( 0.00)	0.025		
17	90.78( 0.00)	0.118		
18	90.78( 0.00)	0.118		
19	91.19( 0.14)	0.118		
20	90.23( 0.00)	0.118		

DRYWELL PRESSURE=

72.0700 ( -0.0040) PSIA

REF. VESSEL DP=

0.9750 ( 0.0000) PSID

AVG. CONT. TEMP=

90.249 ( 0.0294) DEG.F

AVG. DEWPOINT PRESS=

0.615 ( 0.0003) PSIA

INTERVAL 9 LEAK RATE=

0.025 WT%/24HRS

TOTAL TIME LEAK RATE=

0.153 WT%/24HRS

# MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85081.56

POUNDS

PROJECTED LEAK RATE=

0.182

WT%/24HRS

95% CONFIDENCE INTERVAL=

+/- 0.130

WT%/24HRS

95% UPPER CONFIDENCE LEAK RATE=

0.313

WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)=

0.476

WT%/24HRS



COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 11

DATE: 8/ 26/ 83 2300

LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 3.33

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.56( 0.00)	0.027	79.700( 0.000)	0.150
2	88.84( 0.00)	0.027	80.330( 0.110)	0.150
3	88.97( 0.00)	0.027	81.920( 0.470)	0.150
4	89.65( 0.00)	0.027	79.890( 0.190)	0.100
5	89.38(-0.14)	0.027	86.550( 0.130)	0.225
6	89.52( 0.00)	0.027	87.350( 0.080)	0.225
7	89.11(-0.14)	0.027		
8	90.45( 0.00)	0.075		
9	89.19( 0.00)	0.075		
10	89.78(-0.08)	0.030		
11	89.69(-0.09)	0.030		
12	90.28( 0.00)	0.030		
13	92.72( 0.00)	0.025		
14	90.03( 0.00)	0.025		
15	90.03( 0.00)	0.025		
16	90.45( 0.00)	0.025		
17	90.78( 0.00)	0.118		
18	90.78( 0.00)	0.118		
19	91.05(-0.14)	0.118		
20	90.23( 0.00)	0.118		

DRYWELL PRESSURE= 72.0640 ( -0.0060) PSIA  
 REF. VESSEL DP= 0.9741 ( -0.0009) PSID  
 AVG. CONT. TEMP= 90.220 ( -0.0292) DEG.F  
 AVG. DEWPOINT PRESS= 0.618 ( 0.0028) PSIA

INTERVAL 10 LEAK RATE= 0.203 WT%/24HRS  
 TOTAL TIME LEAK RATE= 0.158 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS ( DRY AIR)= 85079.16 POUNDS  
 PROJECTED LEAK RATE= 0.172 WT%/24HRS  
 95% CONFIDENCE INTERVAL= +/- 0.113 WT%/24HRS  
 95% UPPER CONFIDENCE LEAK RATE= 0.285 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 12  
DATE: 8/ 26/ 83 2320  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 3.67

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.56( 0.00)	0.027	79.700( 0.000)	0.150
2	88.97( 0.13)	0.027	80.330( 0.000)	0.150
3	88.94(-0.13)	0.027	81.700(-0.220)	0.150
4	89.65( 0.00)	0.027	79.700(-0.190)	0.100
5	89.52( 0.14)	0.027	86.550( 0.000)	0.225
6	89.38(-0.14)	0.027	87.270(-0.080)	0.225
7	89.11( 0.00)	0.027		
8	90.37(-0.08)	0.075		
9	89.19( 0.00)	0.075		
10	89.86( 0.00)	0.030		
11	89.69( 0.00)	0.030		
12	90.28( 0.00)	0.030		
13	92.72( 0.00)	0.025		
14	90.03( 0.00)	0.025		
15	90.03( 0.00)	0.025		
16	90.45( 0.00)	0.025		
17	90.64(-0.14)	0.118		
18	90.78( 0.00)	0.118		
19	91.05( 0.00)	0.118		
20	90.23( 0.00)	0.118		

DRYWELL PRESSURE= 72.0640 ( 0.0000) PSIA  
REF. VESSEL DP= 0.9764 ( 0.0023) PSID  
AVG. CONT. TEMP= 90.200 ( -0.0201) DEG.F  
AVG. DEWPOINT PRESS= 0.617 ( -0.0012) PSIA

INTERVAL 11 LEAK RATE= 0.112 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.154 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85077.83 POUNDS  
PROJECTED LEAK RATE= 0.164 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.100 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.264 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 13  
DATE: 8/ 26/ 83 2340  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 4.00

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.43(-0.13)	0.027	79.330(-0.370)	0.150
2	88.84(-0.13)	0.027	80.330( 0.000)	0.150
3	88.84( 0.00)	0.027	81.830( 0.130)	0.150
4	89.65( 0.00)	0.027	79.700( 0.000)	0.100
5	89.25(-0.27)	0.027	86.550( 0.000)	0.225
6	89.38( 0.00)	0.027	87.180(-0.090)	0.225
7	89.11( 0.00)	0.027		
8	90.37( 0.00)	0.075		
9	89.11(-0.08)	0.075		
10	89.78(-0.08)	0.030		
11	89.61(-0.08)	0.030		
12	90.20(-0.08)	0.030		
13	92.63(-0.09)	0.025		
14	89.95(-0.08)	0.025		
15	89.95(-0.08)	0.025		
16	90.37(-0.08)	0.025		
17	90.64( 0.00)	0.118		
18	90.78( 0.00)	0.118		
19	91.05( 0.00)	0.118		
20	90.06(-0.17)	0.118		

DRYWELL PRESSURE=	72.0560	( -0.0080)	PSIA
REF. VESSEL DP=	0.9806	( 0.0042)	PSID
AVG. CONT. TEMP=	90.144	( -0.0558)	DEG.F
AVG. DEWPOINT PRESS=	0.616	( -0.0008)	PSIA

INTERVAL 12 LEAK RATE=	0.357	WT%/24HRS
TOTAL TIME LEAK RATE=	0.171	WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)=	85073.62	POUNDS
PROJECTED LEAK RATE=	0.166	WT%/24HRS
95% CONFIDENCE INTERVAL=	+/- 0.094	WT%/24HRS
95% UPPER CONFIDENCE LEAK RATE=	0.260	WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75*LA)=	0.476	WT%/24HRS
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COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 14  
DATE: 8/ 26/ 83 2400  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 4.33

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.43( 0.00)	0.027	79.700( 0.370)	0.150
2	88.84( 0.00)	0.027	80.220(-0.110)	0.150
3	88.84( 0.00)	0.027	81.830( 0.000)	0.150
4	89.52(-0.13)	0.027	79.700( 0.000)	0.100
5	89.25( 0.00)	0.027	86.420(-0.130)	0.225
6	89.38( 0.00)	0.027	87.270( 0.090)	0.225
7	89.11( 0.00)	0.027		
8	90.28(-0.09)	0.075		
9	89.11( 0.00)	0.075		
10	89.78( 0.00)	0.030		
11	89.61( 0.00)	0.030		
12	90.20( 0.00)	0.030		
13	92.63( 0.00)	0.025		
14	89.86(-0.09)	0.025		
15	89.86(-0.09)	0.025		
16	90.37( 0.00)	0.025		
17	90.64( 0.00)	0.118		
18	90.64(-0.14)	0.118		
19	90.92(-0.13)	0.118		
20	90.06( 0.00)	0.118		

DRYWELL PRESSURE= 72.0510 ( -0.0050) PSIA  
REF. VESSEL DP= 0.9796 ( -0.0010) PSID  
AVG. CONT. TEMP= 90.098 ( -0.0456) DEG.F  
AVG. DEWPOINT PRESS= 0.617 ( 0.0003) PSIA

INTERVAL 13 LEAK RATE= -0.056 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.153 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85074.28 POUNDS  
PROJECTED LEAK RATE= 0.160 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.086 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.246 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 15

DATE: 8/ 27/ 83 2420

LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 4.67

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.43( 0.00)	0.027	79.600(-0.100)	0.150
2	88.84( 0.00)	0.027	80.000(-0.220)	0.150
3	88.84( 0.00)	0.027	81.900( 0.070)	0.150
4	89.52( 0.00)	0.027	79.700( 0.000)	0.100
5	89.25( 0.00)	0.027	86.200(-0.220)	0.225
6	89.52( 0.14)	0.027	87.300( 0.030)	0.225
7	89.11( 0.00)	0.027		
8	90.28( 0.00)	0.075		
9	89.11( 0.00)	0.075		
10	89.69(-0.09)	0.030		
11	89.61( 0.00)	0.030		
12	90.20( 0.00)	0.030		
13	92.55(-0.08)	0.025		
14	89.86( 0.00)	0.025		
15	89.86( 0.00)	0.025		
16	90.28(-0.09)	0.025		
17	90.64( 0.00)	0.118		
18	90.64( 0.00)	0.118		
19	90.92( 0.00)	0.118		
20	90.06( 0.00)	0.118		

DRYWELL PRESSURE= 72.0460 ( -0.0050) PSIA  
REF. VESSEL DP= 0.9805 ( 0.0009) PSID  
AVG. CONT. TEMP= 90.094 ( -0.0032) DEG.F  
AVG. DEWPOINT PRESS= 0.615 ( -0.0015) PSIA

INTERVAL 14 LEAK RATE= -0.056 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.138 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85074.94 POUNDS  
PROJECTED LEAK RATE= 0.151 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.078 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.229 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS

COOPER1

PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 16

DATE: 8/ 27/ 83 0040

LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 5.00

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.43( 0.00)	0.027	79.700( 0.100)	0.150
2	88.70(-0.14)	0.027	80.330( 0.330)	0.150
3	88.84( 0.00)	0.027	81.830(-0.070)	0.150
4	89.52( 0.00)	0.027	79.800( 0.100)	0.100
5	89.25( 0.00)	0.027	86.550( 0.350)	0.225
6	89.25(-0.27)	0.027	87.180(-0.120)	0.225
7	89.11( 0.00)	0.027		
8	90.28( 0.00)	0.075		
9	89.11( 0.00)	0.075		
10	89.69( 0.00)	0.030		
11	89.61( 0.00)	0.030		
12	90.20( 0.00)	0.030		
13	92.55( 0.00)	0.025		
14	89.86( 0.00)	0.025		
15	89.86( 0.00)	0.025		
16	90.28( 0.00)	0.025		
17	90.64( 0.00)	0.118		
18	90.64( 0.00)	0.118		
19	90.92( 0.00)	0.118		
20	90.06( 0.00)	0.118		

DRYWELL PRESSURE=	72.0440	( -0.0020)	PSIA
REF. VESSEL DP=	0.9819	( 0.0014)	PSID
AVG. CONT. TEMP=	90.083	( -0.0111)	DEG.F
AVG. DEWPOINT PRESS=	0.617	( 0.0021)	PSIA

INTERVAL 15 LEAK RATE=	0.355	WT%/24HRS
TOTAL TIME LEAK RATE=	0.153	WT%/24HRS

# MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)=	85070.75	POUNDS
PROJECTED LEAK RATE=	0.150	WT%/24HRS
95% CONFIDENCE INTERVAL=	+/- 0.073	WT%/24HRS
95% UPPER CONFIDENCE LEAK RATE=	0.223	WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75*LA)=	0.476	WT%/24HRS
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COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 17

DATE: 8/ 27/ 83 0100

LAST INTERVAL, HOURS 0.33

HOURS FROM T=0 5.33

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.43( 0.00)	0.027	79.700( 0.000)	0.150
2	88.70( 0.00)	0.027	79.970( -0.360)	0.150
3	88.70( -0.14)	0.027	82.030( 0.200)	0.150
4	89.52( 0.00)	0.027	79.890( 0.090)	0.100
5	89.25( 0.00)	0.027	86.550( 0.000)	0.225
6	89.65( 0.40)	0.027	87.300( 0.120)	0.225
7	88.97( -0.14)	0.027		
8	90.20( 0.00)	0.075		
9	89.02( -0.09)	0.075		
10	89.69( 0.00)	0.030		
11	89.61( 0.00)	0.030		
12	90.20( 0.00)	0.030		
13	92.55( 0.00)	0.025		
14	89.86( 0.00)	0.025		
15	89.86( 0.00)	0.025		
16	90.20( 0.00)	0.025		
17	90.64( 0.00)	0.118		
18	90.64( 0.00)	0.118		
19	90.92( 0.00)	0.118		
20	90.06( 0.00)	0.118		

DRYWELL PRESSURE=

72.0400 ( -0.0040) PSIA

REF. VESSEL DP=

0.9814 ( -0.0005) PSID

AVG. CONT. TEMP=

90.080 ( -0.0035) DEG.F

AVG. DEWPOINT PRESS=

0.617 ( 0.0002) PSIA

INTERVAL 16 LEAK RATE=

-0.029 WT%/24HRS

TOTAL TIME LEAK RATE=

0.141 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)=

85071.09

POUNDS

PROJECTED LEAK RATE=

0.145

WT%/24HRS

95% CONFIDENCE INTERVAL=

+/- 0.068

WT%/24HRS

95% UPPER CONFIDENCE LEAK RATE=

0.213

WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)=

0.476

WT%/24HRS

COOPER1

PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 18

DATE: 8/ 27/ 83 0120

LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 5.67

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.43( 0.00)	0.027	79.800( 0.100)	0.150
2	88.70( 0.00)	0.027	80.330( 0.360)	0.150
3	88.84( 0.14)	0.027	81.830(-0.200)	0.150
4	89.52( 0.00)	0.027	79.890( 0.000)	0.100
5	89.25( 0.00)	0.027	86.330(-0.220)	0.225
6	89.25(-0.40)	0.027	87.300( 0.000)	0.225
7	88.97( 0.00)	0.027		
8	90.28( 0.00)	0.075		
9	89.02( 0.00)	0.075		
10	89.69( 0.00)	0.030		
11	89.61( 0.00)	0.030		
12	90.20( 0.00)	0.030		
13	92.53( 0.00)	0.025		
14	89.86( 0.00)	0.025		
15	89.86( 0.00)	0.025		
16	90.28( 0.00)	0.025		
17	90.64( 0.00)	0.118		
18	90.64( 0.00)	0.118		
19	90.92( 0.00)	0.118		
20	89.93(-0.13)	0.118		

DRYWELL PRESSURE=	72.0340	( -0.0060)	PSIA
REF. VESSEL IP=	0.9874	( 0.0060)	PSID
AVG. CONT. TEMP=	90.057	( -0.0223)	DEG.F
AVG. DEWPOINT PRESS=	0.617	( -0.0003)	PSIA

INTERVAL 17 LEAK RATE=	0.581	WT%/24HRS
TOTAL TIME LEAK RATE=	0.167	WT%/24HRS

## MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)=	85064.22	POUNDS
PROJECTED LEAK RATE=	0.150	WT%/24HRS
95% CONFIDENCE INTERVAL=	+/- 0.067	WT%/24HRS
95% UPPER CONFIDENCE LEAK RATE=	0.217	WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75*LA)=	0.476	WT%/24HRS
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COOPER1

PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 19

DATE: 8/ 27/ 83 0140

LAST INTERVAL, HOURS 0.33

HOURS FROM T=0 6.00

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.29(-0.14)	0.027	79.700(-0.100)	0.150
2	88.70( 0.00)	0.027	80.220(-0.110)	0.150
3	88.70(-0.14)	0.027	81.920( 0.090)	0.150
4	89.52( 0.00)	0.027	79.800(-0.090)	0.100
5	89.25( 0.00)	0.027	86.500( 0.170)	0.225
6	89.25( 0.00)	0.027	87.200(-0.100)	0.225
7	88.97( 0.00)	0.027		
8	90.20(-0.08)	0.075		
9	89.02( 0.00)	0.075		
10	89.61(-0.08)	0.030		
11	89.53(-0.08)	0.030		
12	90.12(-0.08)	0.030		
13	92.55( 0.00)	0.025		
14	89.78(-0.08)	0.025		
15	89.86( 0.00)	0.025		
16	90.20(-0.08)	0.025		
17	90.64( 0.00)	0.118		
18	90.64( 0.00)	0.118		
19	90.92( 0.00)	0.118		
20	90.06( 0.13)	0.118		

DRYWELL PRESSURE=

72.0290 ( -0.0050) PSIA

REF. VESSEL DP=

0.9846 ( -0.0028) PSID

AVG. CONT. TEMP=

90.048 ( -0.0094) DEG.F

AVG. DEWPOINT PRESS=

0.617 ( -0.0001) PSIA

INTERVAL 18 LEAK RATE=

-0.290 WT%/24HRS

TOTAL TIME LEAK RATE=

0.142 WT%/24HRS

## MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85067.64

POUNDS

PROJECTED LEAK RATE= 0.146

WT%/24HRS

95% CONFIDENCE INTERVAL= +/- 0.063

WT%/24HRS

95% UPPER CONFIDENCE LEAK RATE= 0.209

WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476

WT%/24HRS

COOPER1

0.00407 PSID

PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 20

DATE: 8/ 27/ 83 0200

LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 6.33

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.29( 0.00)	0.027	79.800( 0.100)	0.150
2	88.70( 0.00)	0.027	80.150(-0.070)	0.150
3	88.70( 0.00)	0.027	82.030( 0.110)	0.150
4	89.38(-0.14)	0.027	79.700(-0.100)	0.100
5	89.25( 0.00)	0.027	86.330(-0.170)	0.225
6	89.11(-0.14)	0.027	87.180(-0.020)	0.225
7	88.84(-0.13)	0.027		
8	90.20( 0.00)	0.075		
9	88.94(-0.08)	0.075		
10	89.61( 0.00)	0.030		
11	89.44(-0.09)	0.030		
12	90.12( 0.00)	0.030		
13	92.55( 0.00)	0.025		
14	89.78( 0.00)	0.025		
15	89.78(-0.08)	0.025		
16	90.20( 0.00)	0.025		
17	90.64( 0.00)	0.118		
18	90.64( 0.00)	0.118		
19	90.92( 0.00)	0.118		
20	90.06( 0.00)	0.118		

DRYWELL PRESSURE=

72.0210 ( -0.0080) PSIA

REF. VESSEL DP=

0.9892 ( 0.0046) PSID

AVG. CONT. TEMP=

90.026 ( -0.0217) DEG.F

AVG. DEWPOINT PRESS=

0.616 ( -0.0006) PSIA

INTERVAL 19 LEAK RATE=

0.406

WT%/24HRS

TOTAL TIME LEAK RATE=

0.156

WT%/24HRS

## MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)=

85062.85

POUNDS

PROJECTED LEAK RATE=

0.147

WT%/24HRS

95% CONFIDENCE INTERVAL=

+/- 0.061

WT%/24HRS

95% UPPER CONFIDENCE LEAK RATE=

0.209

WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)=

0.476

WT%/24HRS



COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 21

DATE: 8/ 27/ 83 0220

LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 6.67

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.29( 0.00)	0.027	79.800( 0.000)	0.150
2	88.56(-0.14)	0.027	80.150( 0.000)	0.150
3	88.56(-0.14)	0.027	81.850(-0.180)	0.150
4	89.38( 0.00)	0.027	79.900( 0.200)	0.100
5	89.11(-0.14)	0.027	86.500( 0.170)	0.225
6	89.11( 0.00)	0.027	87.180( 0.000)	0.225
7	88.97( 0.13)	0.027		
8	90.20( 0.00)	0.075		
9	88.94( 0.00)	0.075		
10	89.61( 0.00)	0.030		
11	89.53( 0.09)	0.030		
12	90.12( 0.00)	0.030		
13	92.46(-0.09)	0.025		
14	89.78( 0.00)	0.025		
15	89.78( 0.00)	0.025		
16	90.20( 0.00)	0.025		
17	90.51(-0.13)	0.118		
18	90.64( 0.00)	0.118		
19	90.92( 0.00)	0.118		
20	89.93(-0.13)	0.118		

DRYWELL PRESSURE=	72.0170	( -0.0040)	PSIA
REF. VESSEL DP=	0.9859	( -0.0033)	PSID
AVG. CONT. TEMP=	89.988	( -0.00380)	DEG.F
AVG. DEWPOINT PRESS=	0.617	( 0.0005)	PSIA

INTERVAL 20 LEAK RATE=	-0.271	WT%/24HRS
TOTAL TIME LEAK RATE=	0.134	WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)=	85066.05	POUNDS
PROJECTED LEAK RATE=	0.142	WT%/24HRS
95% CONFIDENCE INTERVAL=	+/- 0.058	WT%/24HRS
95% UPPER CONFIDENCE LEAK RATE=	0.200	WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75*LA)=	0.476	WT%/24HRS
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COOPERI  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 22  
DATE: 8/ 27/ 83 0240  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 7.00

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.29( 0.00)	0.027	79.800( 0.000)	0.150
2	88.56( 0.00)	0.027	80.220( 0.070)	0.150
3	88.56( 0.00)	0.027	81.920( 0.070)	0.150
4	89.38( 0.00)	0.027	79.900( 0.000)	0.100
5	89.11( 0.00)	0.027	86.420(-0.080)	0.225
6	89.11( 0.00)	0.027	87.300( 0.120)	0.225
7	88.84(-0.13)	0.027		
8	90.12(-0.08)	0.075		
9	88.94( 0.00)	0.075		
10	89.53(-0.08)	0.030		
11	89.44(-0.09)	0.030		
12	90.12( 0.00)	0.030		
13	92.46( 0.00)	0.025		
14	89.69(-0.09)	0.025		
15	89.69(-0.09)	0.025		
16	90.20( 0.00)	0.025		
17	90.51( 0.00)	0.118		
18	90.64( 0.00)	0.118		
19	90.92( 0.00)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE= 72.0170 ( 0.0000) PSIA  
REF. VESSEL DP= 0.9908 ( 0.0049) PSID  
AVG. CONT. TEMP= 89.969 ( -0.0191) DEG.F  
AVG. DEWPOINT PRESS= 0.617 ( 0.0006) PSIA

INTERVAL 21 LEAK RATE= 0.558 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.154 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85059.46 POUNDS  
PROJECTED LEAK RATE= 0.144 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.057 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.200 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 23  
DATE: 8/ 27/ 83 0300  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 7.33

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.15(-0.14)	0.027	79.800( 0.000)	0.150
2	88.56( 0.00)	0.027	80.220( 0.000)	0.150
3	88.70( 0.14)	0.027	81.850(-0.070)	0.150
4	89.38( 0.00)	0.027	79.700(-0.200)	0.100
5	89.11( 0.00)	0.027	86.500( 0.080)	0.225
6	89.11( 0.00)	0.027	87.180(-0.120)	0.225
7	88.84( 0.00)	0.027		
8	90.12( 0.00)	0.075		
9	88.85(-0.09)	0.075		
10	89.53( 0.00)	0.030		
11	89.44( 0.00)	0.030		
12	90.12( 0.00)	0.030		
13	92.46( 0.00)	0.025		
14	89.69( 0.00)	0.025		
15	89.69( 0.00)	0.025		
16	90.20( 0.00)	0.025		
17	90.64( 0.13)	0.118		
18	90.64( 0.00)	0.118		
19	90.92( 0.00)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE= 72.0080 ( -0.0090) PSIA  
REF. VESSEL DP= 0.9870 ( -0.0038) PSID  
AVG. CONT. TEMP= 89.978 ( 0.0086) DEG.F  
AVG. DEWPOINT PRESS= 0.617 ( -0.0007) PSIA

INTERVAL 22 LEAK RATE= -0.453 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.127 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85064.82 POUNDS  
PROJECTED LEAK RATE= 0.138 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.053 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.192 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 24  
DATE: 8/ 27/ 83 0320  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 7.67

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.15( 0.00)	0.027	79.900( 0.100)	0.150
2	88.56( 0.00)	0.027	80.220( 0.000)	0.150
3	88.56(-0.14)	0.027	81.850( 0.000)	0.150
4	89.25(-0.13)	0.027	79.800( 0.100)	0.100
5	89.11( 0.00)	0.027	86.500( 0.000)	0.225
6	89.11( 0.00)	0.027	87.180( 0.000)	0.225
7	88.84( 0.00)	0.027		
8	90.12( 0.00)	0.075		
9	88.85( 0.00)	0.075		
10	89.53( 0.00)	0.030		
11	89.44( 0.00)	0.030		
12	90.03(-0.09)	0.030		
13	92.38(-0.08)	0.025		
14	89.61(-0.08)	0.025		
15	89.69( 0.00)	0.025		
16	90.12(-0.08)	0.025		
17	90.51(-0.13)	0.118		
18	90.51(-0.13)	0.118		
19	90.78(-0.14)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE= 72.0010 ( -0.0070) PSIA  
REF. VESSEL DP= 0.9937 ( 0.0067) PSID  
AVG. CONT. TEMP= 89.915 ( -0.0631) DEG.F  
AVG. DEWPOINT PRESS= 0.617 ( 0.0004) PSIA

INTERVAL 23 LEAK RATE= 0.730 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.153 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85056.19 POUNDS  
PROJECTED LEAK RATE= 0.140 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.052 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.192 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 25  
DATE: 8/ 27/ 83 0340  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 8.00

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.15( 0.00)	0.027	79.800(-0.100)	0.150
2	88.43(-0.13)	0.027	80.220( 0.000)	0.150
3	88.43(-0.13)	0.027	81.920( 0.070)	0.150
4	89.25( 0.00)	0.027	79.800( 0.000)	0.100
5	89.11( 0.00)	0.027	86.420(-0.000)	0.225
6	88.97(-0.14)	0.027	87.180( 0.000)	0.225
7	88.70(-0.14)	0.027		
8	90.03(-0.09)	0.075		
9	88.85( 0.00)	0.075		
10	89.44(-0.09)	0.030		
11	89.44( 0.00)	0.030		
12	90.03( 0.00)	0.030		
13	92.38( 0.00)	0.025		
14	89.61( 0.00)	0.025		
15	89.61(-0.08)	0.025		
16	90.12( 0.00)	0.025		
17	90.51( 0.00)	0.110		
18	90.51( 0.00)	0.110		
19	90.78( 0.00)	0.110		
20	89.93( 0.00)	0.110		

DRYWELL PRESSURE= 71.9960 ( -0.0050) PSIA  
REF. VESSEL DP= 0.9950 ( 0.0021) PSID  
AVG. CONT. TEMP= 89.889 ( -0.0260) DEG.F  
AVG. DEWPOINT PRESS= 0.617 ( -0.0004) PSIA

INTERVAL 24 LEAK RATE= 0.183 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.154 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85054.03 POUNDS  
PROJECTED LEAK RATE= 0.142 WT%/24HRS  
95% CONFIDENCE INTERVAL= +/- 0.052 WT%/24HRS  
95% UPPER CONFIDENCE LEAK RATE= 0.193 WT%/24HRS

MAXIMUM ALLOWABLE LEAK RATE(0.75\*LA)= 0.476 WT%/24HRS

ATTACHMENT E: COMPOSITE LEAK TEST DATA SETS

Absolute Method . . . . . E-2

Reference Chamber Method . . . E-19

COMPOSITE DATA SHEETS - ABSOLUTE METHOD



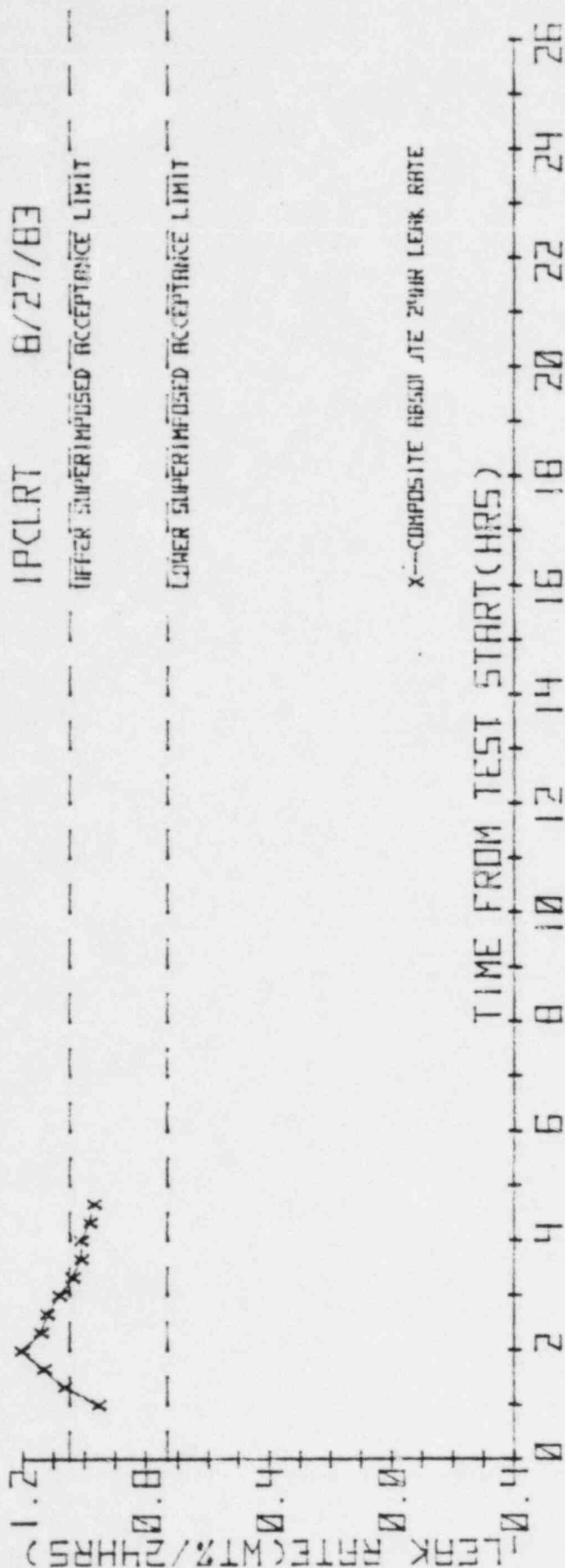
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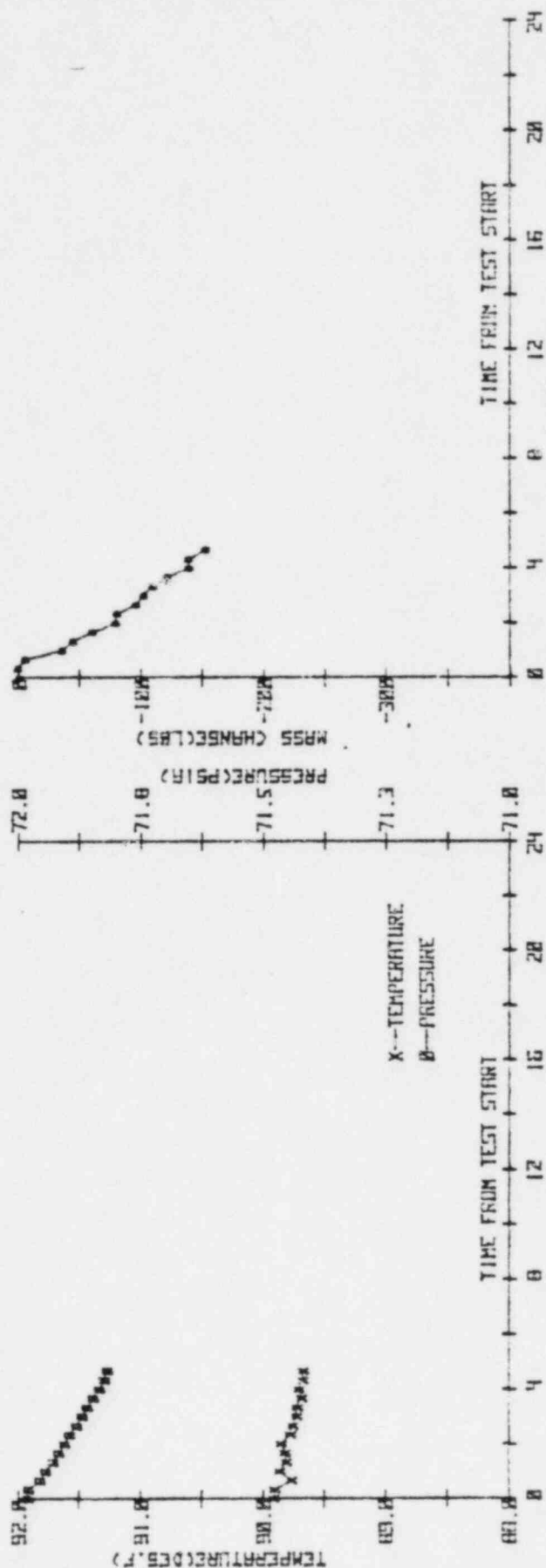
UPPER SUPERIMPOSED ACCEPTANCE LIMIT

LOWER SUPERIMPOSED ACCEPTANCE LIMIT



X--COMPOSITE RESIDUAL LEAK RATE

TIME FROM TEST START (HRS)



X--TEMPERATURE  
O--PRESSURE

COOPER1  
PRIMARY CONTAINMENT ILRT---ABSOLUTE METHOD

DATA SET NUMBER 1  
DATE: 8/ 27/ 83 0420  
LAST INTERVAL, HOURS 0.00 HOURS FROM T=0 0.00

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.15( 0.00)	0.027	79.800( 0.000)	0.150
2	88.43( 0.00)	0.027	80.220( 0.000)	0.150
3	88.56( 0.00)	0.027	81.920( 0.000)	0.150
4	89.25( 0.00)	0.027	79.900( 0.000)	0.100
5	88.97( 0.00)	0.027	86.500( 0.000)	0.225
6	89.11( 0.00)	0.027	87.180( 0.000)	0.225
7	88.84( 0.00)	0.027		
8	90.03( 0.00)	0.075		
9	88.77( 0.00)	0.075		
10	89.44( 0.00)	0.030		
11	89.44( 0.00)	0.030		
12	90.03( 0.00)	0.030		
13	92.30( 0.00)	0.025		
14	89.61( 0.00)	0.025		
15	89.61( 0.00)	0.025		
16	90.12( 0.00)	0.025		
17	90.51( 0.00)	0.118		
18	90.64( 0.00)	0.118		
19	90.92( 0.00)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE= 71.9800 ( 0.0000) PSIA  
AVG. CONT. TEMP= 89.900 ( 0.0000) DEG.F  
AVG. DEWPOINT PRESS= 10.617 ( 0.0000) PSIA

CONTAINMENT TOTAL MASS (DRY AIR)= 85000.84 POUNDS

NO LEAKAGE RATE VALUE CALCULATED FOR DATA SET #1

COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

DATA SET NUMBER 2

DATE: 8/ 27/ 83 0440

LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 0.33

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.15( 0.00)	0.027	79.900( 0.100)	0.150
2	88.43( 0.00)	0.027	80.330( 0.110)	0.150
3	88.56( 0.00)	0.027	82.030( 0.110)	0.150
4	89.25( 0.00)	0.027	79.900( 0.000)	0.100
5	89.97( 0.00)	0.027	86.330( -0.170)	0.225
6	89.11( 0.00)	0.027	87.180( 0.000)	0.225
7	88.70( -0.14)	0.027		
8	90.03( 0.00)	0.075		
9	88.77( 0.00)	0.075		
10	89.44( 0.00)	0.030		
11	89.44( 0.00)	0.030		
12	90.03( 0.00)	0.030		
13	92.30( 0.00)	0.025		
14	89.53( -0.08)	0.025		
15	89.53( -0.08)	0.025		
16	90.12( 0.00)	0.025		
17	90.51( 0.00)	0.118		
18	90.64( 0.00)	0.118		
19	90.92( 0.00)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE= 71.9800 ( 0.0000) PSIA  
AVG. CONT. TEMP= 89.912 ( -0.0078) DEG.F  
AVG. DEWPOINT PRESS= 0.617 ( 0.0001) PSIA

INTERVAL 1 LEAK RATE= -0.090 WT%/24HRS  
TOTAL TIME LEAK RATE= -0.090 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 85001.90 POUNDS  
PROJECTED LEAK RATE NOT CALCULATED (<4 DATA SETS)

COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

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DATA SET NUMBER 3  
DATE: 8/ 27/ 83 0500  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 0.67

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.02(-0.13)	0.027	79.900( 0.000)	0.150
2	88.43( 0.00)	0.027	80.220(-0.110)	0.150
3	88.43(-0.13)	0.027	81.850(-0.190)	0.150
4	89.11(-0.14)	0.027	79.800(-0.100)	0.100
5	88.97( 0.00)	0.027	86.500( 0.170)	0.225
6	88.97(-0.14)	0.027	87.180( 0.000)	0.225
7	88.70( 0.00)	0.027		
8	88.95(-1.08)	0.075		
9	88.77( 0.00)	0.075		
10	89.36(-0.08)	0.030		
11	89.36(-0.08)	0.030		
12	89.95(-0.08)	0.030		
13	92.30( 0.00)	0.025		
14	89.53( 0.00)	0.025		
15	89.53( 0.00)	0.025		
16	90.03(-0.09)	0.025		
17	90.51( 0.00)	0.118		
18	90.51(-0.13)	0.118		
19	90.78(-0.14)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE= 71.9570 ( -0.0230) PSIA  
AVG. CONT. TEMP= 89.775 ( -0.1368) DEG.F  
AVG. DEWPOINT PRESS= 0.617 ( -0.0003) PSIA

INTERVAL 2 LEAK RATE= 0.503 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.206 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

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CONTAINMENT TOTAL MASS (DRY AIR)= 84995.97 POUNDS  
PROJECTED LEAK RATE NOT CALCULATED (<4 DATA SETS)

COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

DATA SET NUMBER 4  
DATE: 8/ 27/ 83 0520  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 1.00

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.02( 0.00)	0.027	79.900( 0.000)	0.150
2	88.43( 0.00)	0.027	80.300( 0.110)	0.150
3	88.43( 0.00)	0.027	82.000( 0.180)	0.150
4	89.11( 0.00)	0.027	79.900( 0.100)	0.100
5	88.97( 0.00)	0.027	86.420( -0.090)	0.225
6	88.84( -0.13)	0.027	87.300( 0.120)	0.225
7	88.56( -0.14)	0.027		
8	89.95( 1.00)	0.075		
9	88.77( 0.00)	0.075		
10	89.44( 0.08)	0.030		
11	89.36( 0.00)	0.030		
12	89.95( 0.00)	0.030		
13	92.21( -0.09)	0.025		
14	89.44( -0.09)	0.025		
15	89.53( 0.00)	0.025		
16	90.03( 0.00)	0.025		
17	90.51( 0.00)	0.118		
18	90.64( 0.13)	0.118		
19	90.92( 0.14)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE= 71.9450 < -0.0120) PSIA  
AVG. CONT. TEMP= 89.873 < 0.0974) DEG.F  
AVG. DEWPOINT PRESS= 0.618 < 0.0011) PSIA

INTERVAL 3 LEAK RATE= 2.601 WT%/24HRS  
TOTAL TIME LEAK RATE= .1.005 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

		POUNDS
CONTAINMENT TOTAL MASS (DRY AIR)=	84965.26	WT%/24HRS
LOWER SUPERIMPOSED ACCEPTANCE LIMIT=	0.730	WT%/24HRS
COMPOSITE PROJECTED 24HR LEAK RATE=	0.954	WT%/24HRS
UPPER SUPERIMPOSED ACCEPTANCE LIMIT=	1.047	WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

DATA SET NUMBER 5  
DATE: 8/ 27/ 83 0540  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 1.33

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.82( 0.00)	0.027	79.800(-0.100)	0.150
2	88.43( 0.00)	0.027	80.330( 0.000)	0.150
3	88.43( 0.00)	0.027	81.920(-0.110)	0.150
4	89.11( 0.00)	0.027	79.900( 0.000)	0.100
5	88.97( 0.00)	0.027	82.500( 0.000)	0.225
6	88.84( 0.00)	0.027	87.180(-0.120)	0.225
7	88.56( 0.00)	0.027		
8	89.86(-0.09)	0.075		
9	88.68(-0.09)	0.075		
10	89.36(-0.08)	0.030		
11	89.36( 0.00)	0.030		
12	89.95( 0.00)	0.030		
13	92.21( 0.00)	0.025		
14	89.44( 0.00)	0.025		
15	89.44(-0.09)	0.025		
16	89.95(-0.08)	0.025		
17	90.51( 0.00)	0.118		
18	90.51(-0.13)	0.118		
19	90.78(-0.14)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE= 71.9300 ( -0.0150) PSIA  
AVG. CONT. TEMP= 89.821 ( -0.0520) DEG.F  
AVG. DEWPOINT PRESS= 0.617 ( -0.0007) PSIA

INTERVAL 4 LEAK RATE= 0.761 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.944 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 84956.28 POUNDS  
LOWER SUPERIMPOSED ACCEPTANCE LIMIT= 0.730 WT%/24HRS  
COMPOSITE PROJECTED 24HR LEAK RATE= 1.065 WT%/24HRS  
UPPER SUPERIMPOSED ACCEPTANCE LIMIT= 1.047 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

DATA SET NUMBER 6  
DATE: 8/ 27/ 83 0600  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 1.67

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.02( 0.00)	0.027	79.800( 0.000)	0.150
2	88.29(-0.14)	0.027	80.220(-0.110)	0.150
3	88.43( 0.00)	0.027	81.920( 0.000)	0.150
4	89.11( 0.00)	0.027	79.900( 0.000)	0.100
5	88.97( 0.00)	0.027	86.500( 0.000)	0.225
6	88.84( 0.00)	0.027	87.180( 0.000)	0.225
7	88.56( 0.00)	0.027		
8	89.86( 0.00)	0.075		
9	88.68( 0.00)	0.075		
10	89.36( 0.00)	0.030		
11	89.27(-0.09)	0.030		
12	89.95( 0.00)	0.030		
13	92.21( 0.00)	0.025		
14	89.44( 0.00)	0.025		
15	89.44( 0.00)	0.025		
16	89.95( 0.00)	0.025		
17	90.51( 0.00)	0.118		
18	90.51( 0.00)	0.118		
19	90.92( 0.14)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE= 71.9180 ( -0.0120) PSIA  
AVG. CONT. TEMP= 89.831 ( 0.0100) DEG.F  
AVG. DEWPOINT PRESS= 0.617 ( -0.0003) PSIA

INTERVAL 5 LEAK RATE= 1.310 WT%/24HRS  
TOTAL TIME LEAK RATE= 1.017 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 84940.82 POUNDS  
LOWER SUPERIMPOSED ACCEPTANCE LIMIT= 0.730 WT%/24HRS  
COMPOSITE PROJECTED 24HR LEAK RATE= 1.132 WT%/24HRS  
UPPER SUPERIMPOSED ACCEPTANCE LIMIT= 1.047 WT%/24HRS



COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

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DATA SET NUMBER 7  
DATE: 8/ 27/ 83 0620  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 2.00

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.02( 0.00)	0.027	79.900( 0.100)	0.150
2	88.43( 0.14)	0.027	80.330( 0.110)	0.150
3	88.43( 0.00)	0.027	81.920( 0.000)	0.150
4	89.11( 0.00)	0.027	79.900( 0.000)	0.100
5	88.84(-0.13)	0.027	86.330(-0.170)	0.225
6	88.97( 0.13)	0.027	87.180( 0.000)	0.225
7	88.56( 0.00)	0.027		
8	89.86( 0.00)	0.075		
9	88.68( 0.00)	0.075		
10	89.36( 0.00)	0.030		
11	89.27( 0.00)	0.030		
12	89.86(-0.09)	0.030		
13	92.13(-0.08)	0.025		
14	89.44( 0.00)	0.025		
15	89.44( 0.00)	0.025		
16	89.95( 0.00)	0.025		
17	90.64( 0.13)	0.110		
18	90.64( 0.13)	0.110		
19	90.92( 0.00)	0.110		
20	89.93( 0.00)	0.110		

DRYWELL PRESSURE= 71.9060 ( -0.0120) PSIA  
AVG. CONT. TEMP= 89.860 ( 0.0297) DEG.F  
AVG. DEWPOINT PRESS= 0.617 ( -0.0002) PSIA

INTERVAL 6 LEAK RATE= 1.580 WT%/24HRS  
TOTAL TIME LEAK RATE= 1.111 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

-----  
CONTAINMENT TOTAL MASS (DRY AIR)= 84922.18 POUNDS  
LOWER SUPERIMPOSED ACCEPTANCE LIMIT= 0.730 WT%/24HRS  
COMPOSITE PROJECTED 24HR LEAK RATE= 1.203 WT%/24HRS  
UPPER SUPERIMPOSED ACCEPTANCE LIMIT= 1.047 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

-----  
DATA SET NUMBER 8  
DATE: 07/27/83 0640  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 2.33

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.02( 0.00)	0.027	79.900( 0.000)	0.150
2	88.29(-0.14)	0.027	80.150(-0.100)	0.150
3	88.43( 0.00)	0.027	81.920( 0.000)	0.150
4	89.11( 0.00)	0.027	79.900( 0.000)	0.100
5	88.84( 0.00)	0.027	86.550( 0.220)	0.225
6	88.84(-0.13)	0.027	87.180( 0.000)	0.225
7	88.56( 0.00)	0.027		
8	89.78(-0.08)	0.075		
9	88.60(-0.08)	0.075		
10	89.27(-0.09)	0.030		
11	89.27( 0.00)	0.030		
12	89.86( 0.00)	0.030		
13	92.13( 0.00)	0.025		
14	89.36(-0.08)	0.025		
15	89.44( 0.00)	0.025		
16	89.86(-0.09)	0.025		
17	90.51(-0.13)	0.110		
18	90.51(-0.13)	0.110		
19	90.78(-0.14)	0.110		
20	89.93( 0.00)	0.110		

DRYWELL PRESSURE= 71.8960 ( -0.0100) PSIA  
AVG. CONT. TEMP= 89.787 ( -0.0734) DEG.F  
AVG. DEWPOINT PRESS= 0.617 ( 0.0004) PSIA

INTERVAL 7 LEAK RATE= 0.091 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.965 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

-----  
CONTAINMENT TOTAL MASS (DRY AIR)= 84921.10 POUNDS  
LOWER SUPERIMPOSED ACCEPTANCE LIMIT= 0.730 WT%/24HRS  
COMPOSITE PROJECTED 24HR LEAK RATE= 1.141 WT%/24HRS  
UPPER SUPERIMPOSED ACCEPTANCE LIMIT= 1.047 WT%/24HRS

## LEAK METHOD

 27/ 83  
 LAST INTERVAL, HOURS

 0700  
 0.33

HOURS FROM T=0 2.67

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	87.88(-0.14)	0.027	79.900( 0.000)	0.150
2	88.29( 0.00)	0.027	80.330( 0.100)	0.150
3	88.29(-0.14)	0.027	81.920( 0.000)	0.150
4	88.97(-0.14)	0.027	79.800(-0.100)	0.100
5	88.84( 0.00)	0.027	86.500(-0.050)	0.225
6	88.84( 0.00)	0.027	87.300( 0.120)	0.225
7	88.56( 0.00)	0.027		
8	89.78( 0.00)	0.075		
9	88.52(-0.08)	0.075		
10	89.27( 0.00)	0.030		
11	89.19(-0.08)	0.030		
12	89.86( 0.00)	0.030		
13	90.13( 0.00)	0.025		
14	89.36( 0.00)	0.025		
15	89.36(-0.08)	0.025		
16	89.86( 0.00)	0.025		
17	90.51( 0.00)	0.118		
18	90.51( 0.00)	0.118		
19	90.78( 0.00)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE=

71.8810

( -0.0150) PSIA

AVG. CONT. TEMP=

89.765

( -0.0217) DEG.F

AVG. DEWPOINT PRESS=

0.618

( 0.0007) PSIA

INTERVAL 8 LEAK RATE=

1.297

WT%/24HRS

TOTAL TIME LEAK RATE=

1.006

WT%/24HRS

## MASS FLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)=

84905.80

POUNDS

LOWER SUPERIMPOSED ACCEPTANCE LIMIT=

0.730

WT%/24HRS

COMPOSITE PROJECTED 24HR LEAK RATE=

1.122

WT%/24HRS

UPPER SUPERIMPOSED ACCEPTANCE LIMIT=

1.047

WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

DATA SET NUMBER 10  
DATE: 8/ 27/ 83 0720  
LAST INTERVAL: HOURS 0.33 HOURS FROM T=0 3.00

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	87.88( 0.00)	0.027	79.900( 0.000)	0.150
2	88.29( 0.00)	0.027	80.150(-0.180)	0.150
3	88.29( 0.00)	0.027	81.920( 0.000)	0.150
4	88.97( 0.00)	0.027	79.980( 0.180)	0.100
5	88.70(-0.14)	0.027	86.330(-0.170)	0.225
6	88.70(-0.14)	0.027	87.100(-0.120)	0.225
7	88.03(-0.53)	0.027		
8	89.78( 0.00)	0.075		
9	88.52( 0.00)	0.075		
10	89.19(-0.08)	0.030		
11	89.19( 0.00)	0.030		
12	89.78(-0.08)	0.030		
13	92.05(-0.08)	0.025		
14	89.27(-0.09)	0.025		
15	89.36( 0.00)	0.025		
16	89.86( 0.00)	0.025		
17	90.51( 0.00)	0.118		
18	90.51( 0.00)	0.118		
19	90.78( 0.00)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE= 71.8700 ( -0.0110) PSIA  
AVG. CONT. TEMP= 89.734 ( -0.0309) DEG.F  
AVG. DEWPOINT PRESS= 0.616 ( -0.0015) PSIA

INTERVAL 9 LEAK RATE= 0.554 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.956 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 84899.26 POUNDS  
LOWER SUPERIMPOSED ACCEPTANCE LIMIT= 0.730 WT%/24HRS  
COMPOSITE PROJECTED 24HR LEAK RATE= 1.081 WT%/24HRS  
UPPER SUPERIMPOSED ACCEPTANCE LIMIT= 1.047 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

DATA SET NUMBER 11  
DATE: 8/ 27/ 83 0740  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 3.33

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	87.88( 0.00)	0.027	79.900( 0.000)	0.150
2	88.15(-0.14)	0.027	80.300( 0.150)	0.150
3	88.15(-0.14)	0.027	82.100( 0.180)	0.150
4	88.97( 0.00)	0.027	79.900(-0.080)	0.100
5	88.84( 0.14)	0.027	86.400( 0.070)	0.225
6	88.70( 0.00)	0.027	86.200(-0.980)	0.225
7	88.43( 0.40)	0.027		
8	89.69(-0.09)	0.075		
9	88.52( 0.00)	0.075		
10	89.19( 0.00)	0.030		
11	89.19( 0.00)	0.030		
12	89.78( 0.00)	0.030		
13	92.05( 0.00)	0.025		
14	89.27( 0.00)	0.025		
15	89.27(-0.09)	0.025		
16	89.78(-0.08)	0.025		
17	90.51( 0.00)	0.118		
18	90.51( 0.00)	0.118		
19	90.78( 0.00)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE= 71.8600 ( -0.0100) PSIA  
AVG. CONT. TEMP= 89.730 ( -0.0040) DEG.F  
AVG. DEWPOINT PRESS= 0.613 ( -0.0031) PSIA

INTERVAL 10 LEAK RATE= 0.646 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.925 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)=	84891.64	POUNDS
LOWER SUPERIMPOSED ACCEPTANCE LIMIT=	0.730	WT%/24HRS
COMPOSITE PROJECTED 24HR LEAK RATE=	1.039	WT%/24HRS
UPPER SUPERIMPOSED ACCEPTANCE LIMIT=	1.047	WT%/24HRS



COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

DATA SET NUMBER 12  
DATE: 8/ 27/ 83 0800  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 3.67

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	87.88( 0.00)	0.027	79.900( 0.000)	0.150
2	88.15( 0.00)	0.027	80.300( 0.000)	0.150
3	88.15( 0.00)	0.027	81.900( -0.200)	0.150
4	88.97( 0.00)	0.027	79.800( -0.100)	0.100
5	88.70( -0.14)	0.027	86.200( -0.200)	0.225
6	88.70( 0.00)	0.027	87.100( 0.900)	0.225
7	88.43( 0.00)	0.027		
8	89.61( -0.08)	0.075		
9	88.43( -0.09)	0.075		
10	89.19( 0.00)	0.030		
11	89.11( -0.08)	0.030		
12	89.78( 0.00)	0.030		
13	92.05( 0.00)	0.025		
14	89.27( 0.00)	0.025		
15	89.27( 0.00)	0.025		
16	89.78( 0.00)	0.025		
17	90.51( 0.00)	0.118		
18	90.51( 0.00)	0.118		
19	90.78( 0.00)	0.118		
20	89.79( -0.14)	0.118		

DRYWELL PRESSURE= 71.8480 ( -0.0120) PSIA  
AVG. CONT. TEMP= 89.695 ( -0.0354) DEG.F  
AVG. DEWPOINT PRESS= 0.616 ( 0.0023) PSIA

INTERVAL 11 LEAK RATE= 0.979 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.930 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 84880.10 POUNDS  
LOWER SUPERIMPOSED ACCEPTANCE LIMIT= 0.730 WT%/24HRS  
COMPOSITE PROJECTED 24HR LEAK RATE= 1.013 WT%/24HRS  
UPPER SUPERIMPOSED ACCEPTANCE LIMIT= 1.047 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

DATA SET NUMBER 13

DATE: 8/ 27/ 83 0820

LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 4.00

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	87.88( 0.00)	0.027	79.900( 0.000)	0.150
2	88.15( 0.00)	0.027	80.220( -0.000)	0.150
3	88.15( 0.00)	0.027	81.920( 0.020)	0.150
4	88.97( 0.00)	0.027	79.900( 0.100)	0.100
5	88.70( 0.00)	0.027	86.300( 0.100)	0.225
6	88.70( 0.00)	0.027	87.100( 0.000)	0.225
7	88.43( 0.00)	0.027		
8	89.69( 0.00)	0.075		
9	88.43( 0.00)	0.075		
10	89.19( 0.00)	0.030		
11	89.11( 0.00)	0.030		
12	89.78( 0.00)	0.030		
13	92.05( 0.00)	0.025		
14	89.19( -0.00)	0.025		
15	89.27( 0.00)	0.025		
16	89.78( 0.00)	0.025		
17	90.51( 0.00)	0.118		
18	90.51( 0.00)	0.118		
19	90.78( 0.00)	0.118		
20	89.93( 0.14)	0.118		

DRYWELL PRESSURE= 71.8360 ( -0.0120) PSIA  
 AVG. CONT. TEMP= 89.716 ( 0.0205) DEG.F  
 AVG. DEWPOINT PRESS= 0.616 ( 0.0004) PSIA

INTERVAL 12 LEAK RATE= 1.521 WT%/24HRS  
 TOTAL TIME LEAK RATE= 0.979 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS ( DRY AIR )= 84862.16 POUNDS  
 LOWER SUPERIMPOSED ACCEPTANCE LIMIT= 0.730 WT%/24HRS  
 COMPOSITE PROJECTED 24HR LEAK RATE= 1.013 WT%/24HRS  
 UPPER SUPERIMPOSED ACCEPTANCE LIMIT= 1.047 WT%/24HRS



COOPER1  
PRIMARY CONTAINMENT ILRT----ABSOLUTE METHOD

DATA SET NUMBER 14

DATE: 8/ 27/ 83 0840

LAST INTERVAL, HOURS: 0.33

HOURS FROM T=0 4.33

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	87.88( 0.00)	0.027	79.900( 0.000)	0.150
2	88.15( 0.00)	0.027	80.220( 0.000)	0.150
3	88.15( 0.00)	0.027	79.800(-2.120)	0.150
4	88.97( 0.00)	0.027	79.800(-0.100)	0.100
5	88.70( 0.00)	0.027	86.200(-0.100)	0.225
6	88.70( 0.00)	0.027	87.100( 0.000)	0.225
7	88.43( 0.00)	0.027		
8	89.61(-0.08)	0.075		
9	88.43( 0.00)	0.075		
10	89.11(-0.08)	0.030		
11	89.11( 0.00)	0.030		
12	89.69(-0.09)	0.030		
13	91.96(-0.09)	0.025		
14	89.19( 0.00)	0.025		
15	89.27( 0.00)	0.025		
16	89.78( 0.00)	0.025		
17	90.51( 0.00)	0.118		
18	90.37(-0.14)	0.118		
19	90.78( 0.00)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE=

71.8260 ( -0.0100) PSIA

AVG. CONT. TEMP=

89.686 ( -0.0298) DEG.F

AVG. DEWPOINT PRESS=

0.610 ( -0.0065) PSIA

INTERVAL 13 LEAK RATE=

-0.039 WT%/24HRS

TOTAL TIME LEAK RATE=

0.901 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 84862.62

POUNDS

LOWER SUPERIMPOSED ACCEPTANCE LIMIT=

0.730

WT%/24HRS

COMPOSITE PROJECTED 24HR LEAK RATE=

0.984

WT%/24HRS

UPPER SUPERIMPOSED ACCEPTANCE LIMIT=

1.047

WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT---ABSOLUTE METHOD

DATA SET NUMBER 15

DATE: 8/ 27/ 83 0900

LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 4.67

SENSOR #	TEMP( DEG.F )	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	87.88( 0.00)	0.027	79.900( 0.000)	0.150
2	88.15( 0.00)	0.027	80.300( 0.000)	0.150
3	88.15( 0.00)	0.027	81.900( 2.100)	0.150
4	88.84( -0.13)	0.027	79.900( 0.100)	0.100
5	88.70( 0.00)	0.027	86.300( 0.100)	0.225
6	88.70( 0.00)	0.027	87.100( 0.000)	0.225
7	88.43( 0.00)	0.027		
8	89.61( 0.00)	0.075		
9	88.43( 0.00)	0.075		
10	89.11( 0.00)	0.030		
11	89.11( 0.00)	0.030		
12	89.69( 0.00)	0.030		
13	91.96( 0.00)	0.025		
14	89.19( 0.00)	0.025		
15	89.19( -0.08)	0.025		
16	89.69( -0.09)	0.025		
17	90.51( 0.00)	0.118		
18	90.37( 0.00)	0.118		
19	90.78( 0.00)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE= 71.8200 ( -0.0060) PSIA  
AVG. CONT. TEMP= 89.678 ( -0.0078) DEG.F  
AVG. DEWPOINT PRESS= 0.616 ( 0.0067) PSIA

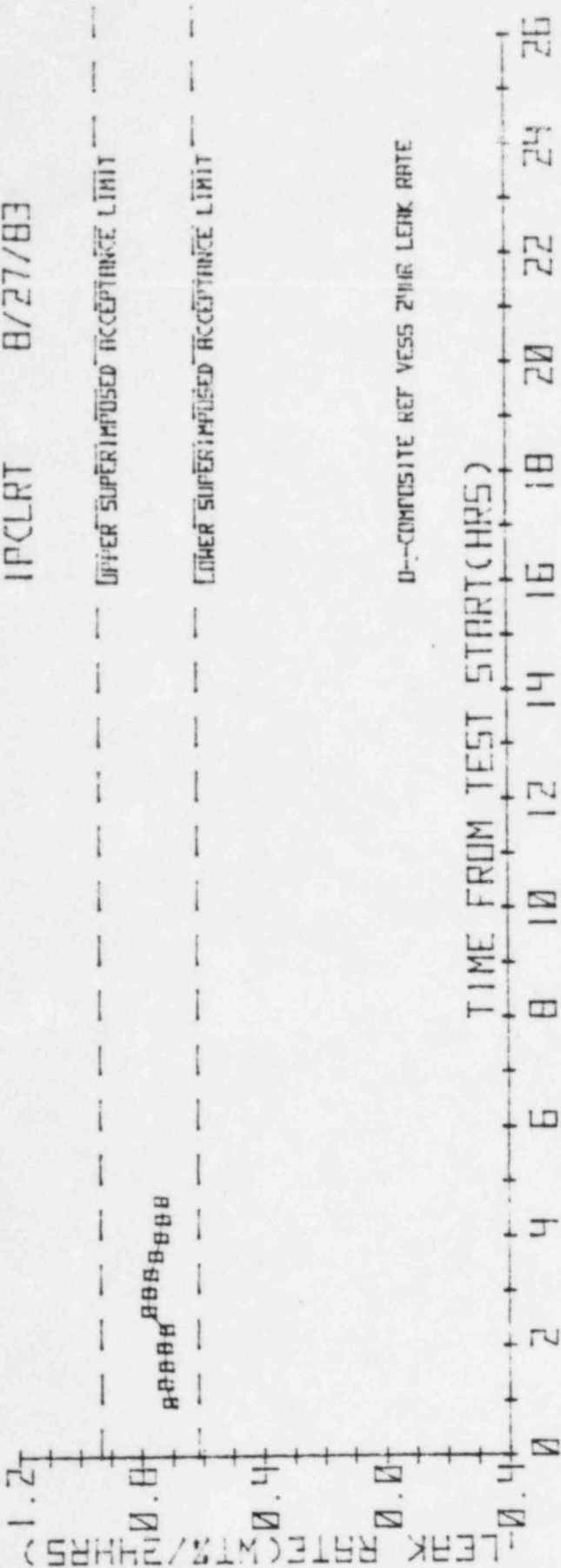
INTERVAL 14 LEAK RATE= 1.180 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.920 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

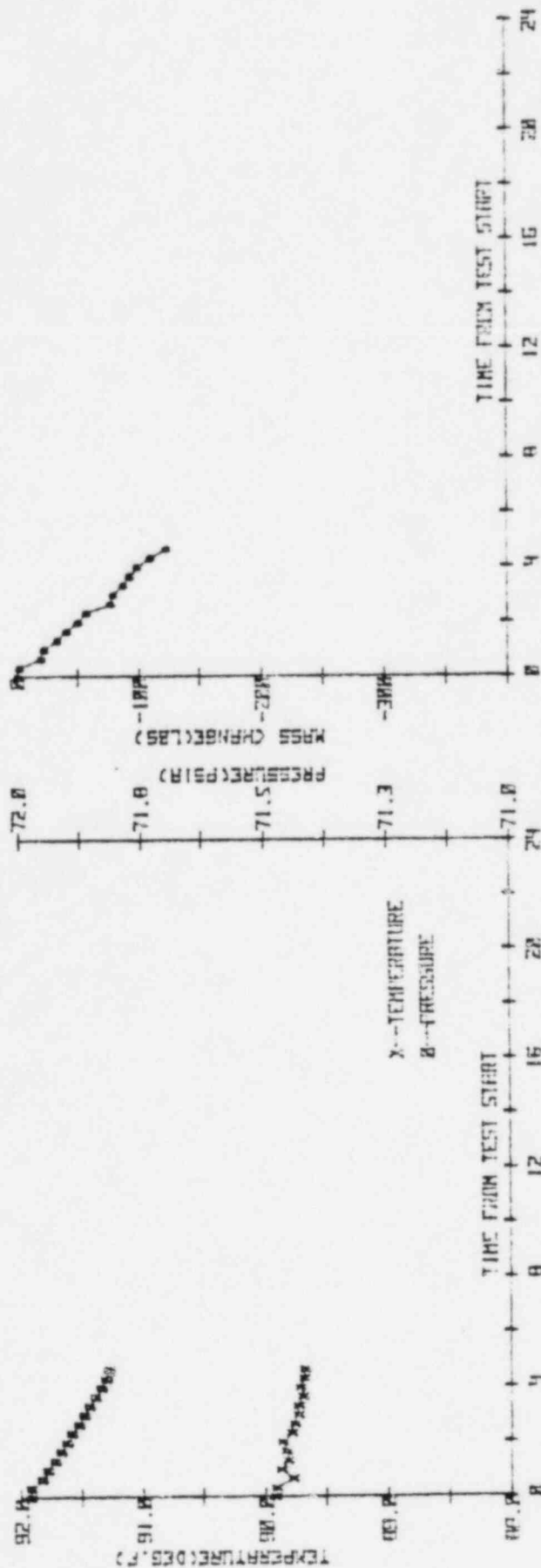
CONTAINMENT TOTAL MASS (DRY AIR)= 84848.72 POUNDS  
LOWER SUPERIMPOSED ACCEPTANCE LIMIT= 0.730 WT%/24HRS  
COMPOSITE PROJECTED 24HR LEAK RATE= 0.969 WT%/24HRS  
UPPER SUPERIMPOSED ACCEPTANCE LIMIT= 1.047 WT%/24HRS

COMPOSITE DATA SHEETS - REFERENCE CHAMBER METHOD

COOPERI  
IPCLRT 8/27/83



D--COMPOSITE REF VESS ZINIR LEAK RATE



PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER

1

DATE: 8/ 27/ 83

0420

LAST INTERVAL, HOURS

0.00

HOURS FROM T=0

0.00

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.15( 0.00)	0.027	79.800( 0.000)	0.150
2	88.43( 0.00)	0.027	80.220( 0.000)	0.150
3	88.56( 0.00)	0.027	81.920( 0.000)	0.150
4	89.25( 0.00)	0.027	79.900( 0.000)	0.100
5	88.97( 0.00)	0.027	86.500( 0.000)	0.225
6	89.11( 0.00)	0.027	87.180( 0.000)	0.225
7	88.84( 0.00)	0.027		
8	90.03( 0.00)	0.075		
9	89.77( 0.00)	0.075		
10	89.44( 0.00)	0.030		
11	89.44( 0.00)	0.030		
12	90.03( 0.00)	0.030		
13	92.30( 0.00)	0.025		
14	89.61( 0.00)	0.025		
15	89.61( 0.00)	0.025		
16	90.12( 0.00)	0.025		
17	90.51( 0.00)	0.118		
18	90.64( 0.00)	0.118		
19	90.92( 0.00)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE=

71.9800

(

0.0000)

PSIA

REF. VESSEL DP=

1.0075

(

0.0000)

PSID

AVG. CONT. TEMP=

89.920

(

0.0000)

DEG.F

AVG. DEWPOINT PRESS=

0.617

(

0.0000)

PSIA

CONTAINMENT TOTAL MASS (DRY AIR)=

85000.84

POUNDS

NO LEAKAGE RATE VALUE CALCULATED FOR DATA SET #1

COOPER1

PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER

2

DATE: 8/ 27/ 83

0440

LAST INTERVAL, HOURS

0.33

HOURS FROM T=0

0.33

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.15( 0.00)	0.027	79.900( 0.100)	0.150
2	88.43( 0.00)	0.027	80.330( 0.110)	0.150
3	88.56( 0.00)	0.027	82.030( 0.110)	0.150
4	89.25( 0.00)	0.027	79.900( 0.000)	0.100
5	88.97( 0.00)	0.027	86.330(-0.170)	0.225
6	89.11( 0.00)	0.027	87.180( 0.000)	0.225
7	88.70(-0.14)	0.027		
8	90.03( 0.00)	0.075		
9	88.77( 0.00)	0.075		
10	89.44( 0.00)	0.030		
11	89.44( 0.00)	0.030		
12	90.03( 0.00)	0.030		
13	92.30( 0.00)	0.025		
14	89.53(-0.08)	0.025		
15	89.53(-0.08)	0.025		
16	90.12( 0.00)	0.025		
17	90.51( 0.00)	0.118		
18	90.64( 0.00)	0.118		
19	90.92( 0.00)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE=

71.9800

( 0.0000)

PSIA

REF. VESSEL DP=

1.0091

( 0.0016)

PSID

AVG. CONT. TEMP=

89.912

(-0.0078)

DEG.F

AVG. DEWPOINT PRESS=

0.617

( 0.0001)

PSIA

INTERVAL 1 LEAK RATE=

0.175

WT%/24HRS

TOTAL TIME LEAK RATE=

0.175

WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)=

84998.77

POUNDS

PROJECTED LEAK RATE NOT CALCULATED (&lt;4 DATA SETS)



COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 3  
DATE: 8/ 27/ 83 0500  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 0.67

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.02(-0.13)	0.027	79.900( 0.000)	0.150
2	88.43( 0.00)	0.027	80.220(-0.110)	0.150
3	88.43(-0.13)	0.027	81.850(-0.180)	0.150
4	89.11(-0.14)	0.027	79.800(-0.100)	0.100
5	88.97( 0.00)	0.027	86.500( 0.170)	0.225
6	88.97(-0.14)	0.027	87.180( 0.000)	0.225
7	88.70( 0.00)	0.027		
8	88.95(-1.08)	0.075		
9	88.77( 0.00)	0.075		
10	89.36(-0.08)	0.030		
11	89.36(-0.08)	0.030		
12	89.95(-0.08)	0.030		
13	92.30( 0.00)	0.025		
14	89.53( 0.00)	0.025		
15	89.53( 0.00)	0.025		
16	90.03(-0.09)	0.025		
17	90.51( 0.00)	0.118		
18	90.51(-0.13)	0.118		
19	90.78(-0.14)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE= 71.9570 ( -0.0230) PSIA  
REF. VESSEL DP= 1.0236 ( -0.0145) PSID  
AVG. CONT. TEMP= 89.775 ( -0.1368) DEG.F  
AVG. DEWPOINT PRESS= 0.617 ( -0.0003) PSIA

INTERVAL 2 LEAK RATE= 1.478 WTX/24HRS  
TOTAL TIME LEAK RATE= 0.827 WTX/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 84981.33 POUNDS  
PROJECTED LEAK RATE NOT CALCULATED (<4 DATA SETS)



COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

-----  
DATA SET NUMBER 4  
DATE: 8/ 27/ 83 0520  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 1.00

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.02( 0.00)	0.027	79.900( 0.000)	0.150
2	88.43( 0.00)	0.027	80.330( 0.110)	0.150
3	88.43( 0.00)	0.027	82.030( 0.180)	0.150
4	89.11( 0.00)	0.027	79.900( 0.100)	0.100
5	88.97( 0.00)	0.027	86.420( -0.080)	0.225
6	88.84( -0.13)	0.027	87.300( 0.120)	0.225
7	88.56( -0.14)	0.027		
8	89.95( 1.00)	0.075		
9	88.77( 0.00)	0.075		
10	89.44( 0.08)	0.030		
11	89.36( 0.00)	0.030		
12	89.95( 0.00)	0.030		
13	92.21( -0.09)	0.025		
14	89.44( -0.09)	0.025		
15	89.53( 0.00)	0.025		
16	90.03( 0.00)	0.025		
17	90.51( 0.00)	0.118		
18	90.64( 0.13)	0.118		
19	90.92( 0.14)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE= 71.9450 ( -0.0120) PSIA  
REF. VESSEL DP= 1.0249 ( 0.0013) PSID  
AVG. CONT. TEMP= 89.873 ( 0.0974) DEG.F  
AVG. DEWPOINT PRESS= 0.619 ( 0.0011) PSIA

INTERVAL 3 LEAK RATE= 0.217 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.623 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

		POUNDS
CONTAINMENT TOTAL MASS (DRY AIR)=	84978.77	
LOWER SUPERIMPOSED ACCEPTANCE LIMIT=	0.614	WT%/24HRS
COMPOSITE PROJECTED 24HR LEAK RATE=	0.709	WT%/24HRS
UPPER SUPERIMPOSED ACCEPTANCE LIMIT=	0.931	WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 5  
DATE: 8/ 27/ 83 0540  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 1.33

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.02(-0.00)	0.027	79.800(-0.100)	0.150
2	88.43(-0.00)	0.027	80.330(-0.000)	0.150
3	88.43(-0.00)	0.027	81.920(-0.110)	0.150
4	89.11(-0.00)	0.027	79.900(-0.000)	0.100
5	88.97(-0.00)	0.027	86.500(-0.080)	0.225
6	88.84(-0.00)	0.027	87.130(-0.120)	0.225
7	88.56(-0.00)	0.027		
8	89.86(-0.09)	0.075		
9	88.68(-0.09)	0.075		
10	89.36(-0.08)	0.030		
11	89.36(-0.00)	0.030		
12	89.95(-0.00)	0.030		
13	92.21(-0.00)	0.025		
14	89.44(-0.00)	0.025		
15	89.44(-0.09)	0.025		
16	89.95(-0.08)	0.025		
17	90.51(-0.00)	0.118		
18	90.51(-0.13)	0.118		
19	90.78(-0.14)	0.118		
20	89.93(-0.00)	0.118		

DRYWELL PRESSURE= 71.9300 (-0.0150) PSIA  
REF. VESSEL DP= 1.0345 (-0.0096) PSID  
AVG. CONT. TEMP= 89.821 (-0.0520) DEG.F  
AVG. DEWPOINT PRESS= 0.617 (-0.0007) PSIA

INTERVAL 4 LEAK RATE= 0.913 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.695 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 84968.00 POUNDS  
LOWER SUPERIMPOSED ACCEPTANCE LIMIT= 0.614 WT%/24HRS  
COMPOSITE PROJECTED 24HR LEAK RATE= 0.726 WT%/24HRS  
UPPER SUPERIMPOSED ACCEPTANCE LIMIT= 0.931 WT%/24HRS

COOPER1

PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER

6

DATE: 8/ 27/ 83

0600

LAST INTERVAL, HOURS

0.33

HOURS FROM T=0

1.67

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.02( 0.00)	0.027	79.800( 0.000)	0.150
2	88.29(-0.14)	0.027	80.220(-0.110)	0.150
3	88.43( 0.00)	0.027	81.920( 0.000)	0.150
4	89.11( 0.00)	0.027	79.900( 0.000)	0.100
5	88.97( 0.00)	0.027	86.500( 0.000)	0.225
6	88.84( 0.00)	0.027	87.180( 0.000)	0.225
7	88.56( 0.00)	0.027		
8	89.86( 0.00)	0.075		
9	88.68( 0.00)	0.075		
10	89.36( 0.00)	0.030		
11	89.27(-0.09)	0.030		
12	89.95( 0.00)	0.030		
13	92.21( 0.00)	0.025		
14	89.44( 0.00)	0.025		
15	89.44( 0.00)	0.025		
16	89.95( 0.00)	0.025		
17	90.51( 0.00)	0.118		
18	90.51( 0.00)	0.118		
19	90.92( 0.14)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE=

71.9100

( -0.0120)

PSIA

REF. VESSEL DP=

1.0414

( 0.0069)

PSID

AVG. CONT. TEMP=

89.831

( 0.0100)

DEG.F

AVG. DEWPOINT PRESS=

0.617

( -0.0003)

PSIA

INTERVAL 5 LEAK RATE=

0.661

WT%/24HRS

TOTAL TIME LEAK RATE=

0.688

WT%/24HRS

## MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 84960.20

POUNDS

LOWER SUPERIMPOSED ACCEPTANCE LIMIT=

0.614

WT%/24HRS

COMPOSITE PROJECTED 24HR LEAK RATE=

0.721

WT%/24HRS

UPPER SUPERIMPOSED ACCEPTANCE LIMIT=

0.931

WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 7  
DATE: 8/ 27/ 83 0620  
LAST INTERVAL: HOURS 0.33 HOURS FROM T=0 2.00

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.02( 0.00)	0.027	79.900( 0.100)	0.150
2	88.43( 0.14)	0.027	80.330( 0.110)	0.150
3	88.43( 0.00)	0.027	81.920( 0.000)	0.150
4	89.11( 0.00)	0.027	79.900( 0.000)	0.100
5	88.84( -0.13)	0.027	86.330( -0.170)	0.225
6	88.97( 0.13)	0.027	87.100( 0.000)	0.225
7	88.56( 0.00)	0.027		
8	89.86( 0.00)	0.075		
9	88.68( 0.00)	0.075		
10	89.36( 0.00)	0.030		
11	89.27( 0.00)	0.030		
12	89.86( -0.09)	0.030		
13	92.13( -0.08)	0.025		
14	89.44( 0.00)	0.025		
15	89.44( 0.00)	0.025		
16	89.95( 0.00)	0.025		
17	90.64( 0.13)	0.110		
18	90.64( 0.13)	0.110		
19	90.92( 0.00)	0.110		
20	89.93( 0.00)	0.110		

DRYWELL PRESSURE= 71.9060 ( -0.0120) PSIA  
REF. VESSEL DP= 1.0496 ( 0.0082) PSID  
AVG. CONT. TEMP= 89.860 ( 0.0297) DEG.F  
AVG. DEWPOINT PRESS= 0.617 ( -0.0002) PSIA

INTERVAL 6 LEAK RATE= 0.798 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.707 WT%/24HRS

MASS FLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 84950.78 POUNDS  
LOWER SUPERIMPOSED ACCEPTANCE LIMIT= 0.614 WT%/24HRS  
COMPOSITE PROJECTED 24HR LEAK RATE= 0.728 WT%/24HRS  
UPPER SUPERIMPOSED ACCEPTANCE LIMIT= 0.931 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 8  
DATE: 8/ 27/ 83 0640  
LAST INTERVAL: HOURS 0.33 HOURS FROM T=0 2.33

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	88.02( 0.00)	0.027	79.900( 0.000)	0.150
2	88.29(-0.14)	0.027	80.150(-0.180)	0.150
3	88.43( 0.00)	0.027	81.920( 0.000)	0.150
4	89.11( 0.00)	0.027	79.900( 0.000)	0.100
5	88.84( 0.00)	0.027	86.550( 0.220)	0.225
6	88.84(-0.13)	0.027	87.180( 0.000)	0.225
7	88.56( 0.00)	0.027		
8	89.78(-0.08)	0.075		
9	88.60(-0.08)	0.075		
10	89.27(-0.09)	0.030		
11	89.27( 0.00)	0.030		
12	89.86( 0.00)	0.030		
13	92.13( 0.00)	0.025		
14	89.36(-0.08)	0.025		
15	89.44( 0.00)	0.025		
16	89.86(-0.09)	0.025		
17	90.51(-0.13)	0.118		
18	90.51(-0.13)	0.118		
19	90.78(-0.14)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE= 71.8960 ( -0.0100) PSIA  
REF. VESSEL DP= 1.0548 ( 0.0052) PSID  
AVG. CONT. TEMP= 89.737 ( -0.0734) DEG.F  
AVG. DEWPOINT PRESS= 0.617 ( 0.0004) PSIA

INTERVAL 7 LEAK RATE= 0.590 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.690 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 84943.82 POUNDS  
LOWER SUPERIMPOSED ACCEPTANCE LIMIT= 0.614 WT%/24HRS  
COMPOSITE PROJECTED 24HR LEAK RATE= 0.719 WT%/24HRS  
UPPER SUPERIMPOSED ACCEPTANCE LIMIT= 0.931 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 9  
DATE: 8/ 27/ 83 0700  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 2.67

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	87.88(-0.14)	0.027	79.900( 0.000)	0.150
2	88.29( 0.00)	0.027	80.330( 0.100)	0.150
3	88.29(-0.14)	0.027	81.920( 0.000)	0.150
4	88.97(-0.14)	0.027	79.800(-0.100)	0.100
5	88.84( 0.00)	0.027	86.500(-0.050)	0.225
6	88.84( 0.00)	0.027	87.300( 0.120)	0.225
7	88.56( 0.00)	0.027		
8	89.73( 0.00)	0.075		
9	88.52(-0.08)	0.075		
10	89.27( 0.00)	0.030		
11	89.19(-0.08)	0.030		
12	89.86( 0.00)	0.030		
13	92.13( 0.00)	0.025		
14	89.36( 0.00)	0.025		
15	89.36(-0.08)	0.025		
16	89.86( 0.00)	0.025		
17	90.51( 0.00)	0.118		
18	90.51( 0.00)	0.118		
19	90.78( 0.00)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE= 71.8810 ( -0.0150) PSIA  
REF. VESSEL DP= 1.0706 ( 0.0158) PSID  
AVG. CONT. TEMP= 89.765 ( -0.0217) DEG.F  
AVG. DEWPOINT PRESS= 0.618 ( 0.0007) PSIA

INTERVAL 8 LEAK RATE= 1.669 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.812 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)=	84924.12	POUNDS
LOWER SUPERIMPOSED ACCEPTANCE LIMIT=	0.614	WT%/24HRS
COMPOSITE PROJECTED 24HR LEAK RATE=	0.778	WT%/24HRS
UPPER SUPERIMPOSED ACCEPTANCE LIMIT=	0.931	WT%/24HRS



COOPER1

PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 10

DATE: 8/ 27/ 83 0720

LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 3.00

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	87.88( 0.00)	0.027	79.900( 0.000)	0.150
2	88.29( 0.00)	0.027	80.150( -0.100)	0.150
3	88.29( 0.00)	0.027	81.920( 0.000)	0.150
4	88.97( 0.00)	0.027	79.980( 0.100)	0.100
5	88.70( -0.14)	0.027	86.330( -0.170)	0.225
6	88.70( -0.14)	0.027	87.180( -0.120)	0.225
7	88.03( -0.53)	0.027		
8	89.78( 0.00)	0.075		
9	88.52( 0.00)	0.075		
10	89.19( -0.08)	0.030		
11	89.19( 0.00)	0.030		
12	89.78( -0.08)	0.030		
13	92.05( -0.08)	0.025		
14	89.27( -0.09)	0.025		
15	89.36( 0.00)	0.025		
16	89.86( 0.00)	0.025		
17	90.51( 0.00)	0.118		
18	90.51( 0.00)	0.118		
19	90.78( 0.00)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE=	71.8700	( -0.0110)	PSIA
REF. VESSEL DP=	1.0740	( 0.0034)	PSID
AVG. CONT. TEMP=	89.734	( -0.0309)	DEG.F
AVG. DEWPOINT PRESS=	0.616	( -0.0015)	PSIA

INTERVAL 9 LEAK RATE=	0.200	WT%/24HRS
TOTAL TIME LEAK RATE=	0.744	WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)=	84921.76	POUNDS
LOWER SUPERIMPOSED ACCEPTANCE LIMIT=	0.614	WT%/24HRS
COMPOSITE PROJECTED 24HR LEAK RATE=	0.777	WT%/24HRS
UPPER SUPERIMPOSED ACCEPTANCE LIMIT=	0.931	WT%/24HRS



COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 11

DATE: 8/ 27/ 83 0740

LAST INTERVAL, HOURS 0.33

HOURS FROM T=0 3.33

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	87.88( 0.00)	0.027	79.900( 0.000)	0.150
2	88.15(-0.14)	0.027	80.300( 0.150)	0.150
3	88.15(-0.14)	0.027	82.100( 0.180)	0.150
4	88.97( 0.00)	0.027	79.900(-0.000)	0.100
5	88.84( 0.14)	0.027	85.400( 0.070)	0.225
6	88.70( 0.00)	0.027	86.200(-0.900)	0.225
7	88.43( 0.40)	0.027		
8	89.69(-0.09)	0.075		
9	88.52( 0.00)	0.075		
10	89.19( 0.00)	0.030		
11	89.19( 0.00)	0.030		
12	89.78( 0.00)	0.030		
13	92.05( 0.00)	0.025		
14	89.27( 0.00)	0.025		
15	89.27(-0.09)	0.025		
16	89.78(-0.08)	0.025		
17	90.51( 0.00)	0.118		
18	90.51( 0.00)	0.118		
19	90.78( 0.00)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE=  
REF. VESSEL DP=  
AVG. CONT. TEMP=  
AVG. DEWPOINT PRESS=

71.8600 ( -0.0100) PSIA  
1.0836 ( 0.0096) PSID  
89.730 ( -0.0040) DEG. F  
0.613 ( -0.0031) PSIA

INTERVAL 10 LEAK RATE=  
TOTAL TIME LEAK RATE=

0.650 WT%/24HRS  
0.736 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 84913.99  
LOWER SUPERIMPOSED ACCEPTANCE LIMIT= 0.614  
COMPOSITE PROJECTED 24HR LEAK RATE= 0.771  
UPPER SUPERIMPOSED ACCEPTANCE LIMIT= 0.931

POUNDS  
WT%/24HRS  
WT%/24HRS  
WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 12  
DATE: 8/ 27/ 83 0800  
LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 3.67

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	87.88( 0.00)	0.027	79.900( 0.000)	0.150
2	88.15( 0.00)	0.027	80.300( 0.000)	0.150
3	88.15( 0.00)	0.027	81.900(-0.200)	0.150
4	88.97( 0.00)	0.027	79.800(-0.100)	0.100
5	88.70(-0.14)	0.027	86.200(-0.200)	0.225
6	88.70( 0.00)	0.027	87.100( 0.900)	0.225
7	88.43( 0.00)	0.027		
8	89.61(-0.08)	0.075		
9	88.43(-0.09)	0.075		
10	89.19( 0.00)	0.030		
11	89.11(-0.08)	0.030		
12	89.78( 0.00)	0.030		
13	92.05( 0.00)	0.025		
14	89.27( 0.00)	0.025		
15	89.27( 0.00)	0.025		
16	89.78( 0.00)	0.025		
17	90.51( 0.00)	0.118		
18	90.51( 0.00)	0.118		
19	90.78( 0.00)	0.118		
20	89.79(-0.14)	0.118		

DRYWELL PRESSURE= 71.8480 ( -0.0120) PSIA  
REF. VESSEL DP= 1.0857 ( 0.0021) PSID  
AVG. CONT. TEMP= 89.695 ( -0.0354) DEG.F  
AVG. DEWPOINT PRESS= 0.616 ( 0.0023) PSIA

INTERVAL 11 LEAK RATE= 0.454 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.710 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 84908.63 POUNDS  
LOWER SUPERIMPOSED ACCEPTANCE LIMIT= 0.614 WT%/24HRS  
COMPOSITE PROJECTED 24HR LEAK RATE= 0.755 WT%/24HRS  
UPPER SUPERIMPOSED ACCEPTANCE LIMIT= 0.931 WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 13

DATE: 8/ 27/ 83 0820

LAST INTERVAL: HOURS 0.33

HOURS FROM T=0 4.00

SENSOR #	TEMP( DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	87.88( 0.00)	0.027	79.900( 0.000)	0.150
2	88.15( 0.00)	0.027	80.220( -0.080)	0.150
3	88.15( 0.00)	0.027	81.920( 0.020)	0.150
4	88.97( 0.00)	0.027	79.900( 0.100)	0.100
5	88.70( 0.00)	0.027	86.300( 0.100)	0.225
6	88.70( 0.00)	0.027	87.100( 0.000)	0.225
7	88.43( 0.00)	0.027		
8	89.69( 0.00)	0.075		
9	88.43( 0.00)	0.075		
10	89.19( 0.00)	0.030		
11	89.11( 0.00)	0.030		
12	89.78( 0.00)	0.030		
13	92.05( 0.00)	0.025		
14	89.19( -0.08)	0.025		
15	89.27( 0.00)	0.025		
16	89.78( 0.00)	0.025		
17	90.51( 0.00)	0.118		
18	90.51( 0.00)	0.118		
19	90.78( 0.00)	0.118		
20	89.93( 0.14)	0.118		

DRYWELL PRESSURE=

71.8360 ( -0.0120) PSIA

REF. VESSEL DP=

1.0905 ( 0.0048) PSID

AVG. CONT. TEMP=

89.716 ( 0.0205) DEG.F

AVG. DEWPOINT PRESS=

0.616 ( 0.0004) PSIA

INTERVAL 12 LEAK RATE=

0.518 WT%/24HRS

TOTAL TIME LEAK RATE=

0.694 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS ( DRY AIR ) = 84902.52

POUNDS

LOWER SUPERIMPOSED ACCEPTANCE LIMIT = 0.614

WT%/24HRS

COMPOSITE PROJECTED 24HR LEAK RATE = 0.738

WT%/24HRS

UPPER SUPERIMPOSED ACCEPTANCE LIMIT = 0.931

WT%/24HRS

COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 14  
DATE: 8/ 27/ 83 0840  
LAST INTERVAL: HOURS 0.33 HOURS FROM T=0 4.33

SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	87.88( 0.00)	0.027	79.900( 0.000)	0.150
2	88.15( 0.00)	0.027	80.220( 0.000)	0.150
3	88.15( 0.00)	0.027	79.800(-2.120)	0.150
4	88.97( 0.00)	0.027	79.800(-0.100)	0.100
5	88.70( 0.00)	0.027	86.200(-0.100)	0.225
6	88.70( 0.00)	0.027	87.100( 0.000)	0.225
7	88.43( 0.00)	0.027		
8	89.61(-0.08)	0.075		
9	88.43( 0.00)	0.075		
10	89.11(-0.08)	0.030		
11	89.11( 0.00)	0.030		
12	89.69(-0.09)	0.030		
13	91.96(-0.09)	0.025		
14	89.19( 0.00)	0.025		
15	89.27( 0.00)	0.025		
16	89.78( 0.00)	0.025		
17	90.51( 0.00)	0.118		
18	90.37(-0.14)	0.118		
19	90.78( 0.00)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE= 71.8260 ( -0.0100) PSIA  
REF. VESSEL DP= 1.1060 ( 0.0155) PSID  
AVG. CONT. TEMP= 89.686 ( -0.0298) DEG.F  
AVG. DEWPOINT PRESS= 0.610 ( -0.0065) PSIA

INTERVAL 13 LEAK RATE= 0.918 WT%/24HRS  
TOTAL TIME LEAK RATE= 0.711 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 84891.70 POUNDS  
LOWER SUPERIMPOSED ACCEPTANCE LIMIT= 0.614 WT%/24HRS  
COMPOSITE PROJECTED 24HR LEAK RATE= 0.732 WT%/24HRS  
UPPER SUPERIMPOSED ACCEPTANCE LIMIT= 0.931 WT%/24HRS



COOPER1  
PRIMARY CONTAINMENT ILRT---REFERENCE VESSEL METHOD

DATA SET NUMBER 15

DATE: 8/ 27/ 83 0900

LAST INTERVAL, HOURS 0.33 HOURS FROM T=0 4.67

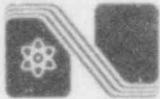
SENSOR #	TEMP(DEG.F)	WT.FACTOR	DEWPOINT (DEG.F)	WT.FACTOR
1	87.88( 0.00)	0.027	79.900( 0.000)	0.150
2	88.15( 0.00)	0.027	80.300( 0.080)	0.150
3	88.15( 0.00)	0.027	81.900( 2.100)	0.150
4	88.84(-0.13)	0.027	79.900( 0.100)	0.100
5	88.70( 0.00)	0.027	86.300( 0.100)	0.225
6	88.70( 0.00)	0.027	87.100( 0.000)	0.225
7	88.43( 0.00)	0.027		
8	89.61( 0.00)	0.075		
9	88.43( 0.00)	0.075		
10	89.11( 0.00)	0.030		
11	89.11( 0.00)	0.030		
12	89.69( 0.00)	0.030		
13	91.96( 0.00)	0.025		
14	89.19( 0.00)	0.025		
15	89.19(-0.08)	0.025		
16	89.69(-0.09)	0.025		
17	90.51( 0.00)	0.118		
18	90.37( 0.00)	0.118		
19	90.78( 0.00)	0.118		
20	89.93( 0.00)	0.118		

DRYWELL PRESSURE= 71.8200 ( -0.0060) PSIA  
 REF. VESSEL DP= 1.1105 ( 0.0045) PSID  
 AVG. CONT. TEMP= 89.678 ( -0.0078) DEG.F  
 AVG. DEWPOINT PRESS= 0.616 ( 0.0067) PSIA

INTERVAL 14 LEAK RATE= 1.132 WT%/24HRS  
 TOTAL TIME LEAK RATE= 0.741 WT%/24HRS

MASS PLOT CONTAINMENT LEAKAGE RATE ANALYSIS

CONTAINMENT TOTAL MASS (DRY AIR)= 84878.35 POUNDS  
 LOWER SUPERIMPOSED ACCEPTANCE LIMIT= 0.614 WT%/24HRS  
 COMPOSITE PROJECTED 24HR LEAK RATE= 0.738 WT%/24HRS  
 UPPER SUPERIMPOSED ACCEPTANCE LIMIT= 0.931 WT%/24HRS



## Nebraska Public Power District

COOPER NUCLEAR STATION  
P.O. BOX 98, BROWNVILLE, NEBRASKA 68321  
TELEPHONE (402) 825-3911

LQA8300018

December 15, 1983

Director, Nuclear Reactor Regulation  
Attention: Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Subject: Reactor Containment Building  
Integrated Leak Rate Test  
Cooper Nuclear Station  
NRC Docket No. 50-298, DPR-46

Dear Sirs:

Pursuant to Appendix J of 10CFR Part 50, the results of the "Reactor Containment Building Integrated Leak Rate Test" conducted on August 27, 1983 are submitted in the enclosure.

If you have any questions or desire further information, please contact me.

Sincerely,

J. M. Pilant  
Technical Staff Manager  
Nuclear Power Group

JMP:MAW:lb  
Enclosure

A017  
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